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Kinesiology is the name given to that division of physical education which deals with the analysis of movement and the prescription of exercise.

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Volume 28 March-April 1948 Number 2

Bed Exercises in Early Convalescence and Ambulation

Nila K. Covalt, M. D.

The scientific value of early ambulation has been conclusively proven. More and more articles on this subject are constantly appearing in the literature. One of the recent, most outstanding studies has been presented in a book by Dr. Daniel J. Leithauser titled "Early Ambulation." It is a noteworthy contribution and includes in the discussion the physiological principles relating to early ambulation, the pre- and postoperative care, exercises, surgical technics and the results of early ambulation upon 2,047 general surgical patients. Leithauser has the patients out of bed and *on their feet* within 3 to 4 hours after surgery usually, or as soon thereafter as they have recovered from the anesthesia. There were but 14 deaths, or 0.68 per cent in the 2,047 cases. None of the 14 deaths could in any way be attributed to the surgical management. The overall mortality rate, or the rate for the various surgical conditions for which the operations were performed, are below the mortality rates usually anticipated for the same operations; 0.68 per cent total mortality rate is exceedingly below the overall average. Complications were markedly less than the percentages of complications normally expected when old bed rest routines are followed. That entire report offers even more conclusive proof of the value of early ambulation and exercises.

While many of the articles appearing in the literature recommend exercise with ambulation, it appears that too often the exercises are not defined in detail, and often there are not enough, or they stress exercises only for the lower extremities. Other articles recommend early ambulation, but give the impression that that in itself is exercise enough. True, while moving a finger or toe has proven to be enough activity to assist in maintaining blood chemistry balances at a normal level and to assist in stimulating healing, the therapeutic effects of muscle reeducation are omitted on such a premise.

There is general agreement on all that is said on early ambulation, but the writer is convinced that much more can be accomplished when specific exercises, and perhaps more of them, are done in a scientific manner. Exercises should be started in bed as soon as the patient is able to respond actively after his anesthesia, to start simultaneously with early ambulation, to continue through the patient's hospital stay and—in many cases, particularly after abdominal surgery and after pregnancy—to be continued for weeks or even months after the illness, no matter how active the patient is—even though the convalescent stage has been greatly shortened and the individual is no longer a patient.

The majority of exercises must be done in bed, even though the patient is an early ambulant. Not only does the ambulant spend more hours in bed than in ambulation, but the horizontal bed positions, which eliminate the majority of exercises being done against gravity, facilitates muscle retraining even as the individual muscles are strengthened. An exercise, correctly learned without the counter effect of gravity, is more readily translated into correct vertical positions where gravity becomes an

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Read before the American Physiotherapy Association conference, Asilomar, Calif., July 1947.

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important factor. Frequently repeated bed exercises, done correctly, have strengthened the specific muscles to perform more correctly and with less effort in vertical positions of sitting, standing and in walking.

There are four basic results if such a program is followed. They are:

They are:

(1) Reeducation and strengthening of all muscle tissue which is weakened or has been injured in any manner by any medical or surgical illness or injury.

(2) The activity itself prevents deconditioning phenomena and postoperative complications.

(3) Prevention of deformities that can result in any illness from lying in bed in incorrect position, or that can occur in early ambulation when the patient assumes a functionally incorrect position as a protective mechanism and often will, without correction, maintain that position habitually.

(4) Correction of deformities, particularly functional, that the patient may have had before his illness, which may be either unaffected or made worse because of the illness, but which can be treated in a planned exercise program in treating the "whole man."

For example, foot exercises, taught in bed should be carried over into teaching the patient correct walking and standing positions. Tight gastrocnemii and hamstrings can be stretched; functional pes varus and valgus can be corrected; the teaching of correct bed postures, as well as certain abdominal and other trunk exercises can be translated into correct sitting and standing postures. The treatment of the whole man is not completed until this teaching is done.

This article is concerned primarily with the accomplishment of the first of these results, and particularly with the muscle injuries that occur in abdominal surgery or because of a pregnancy.

It appears that a general discussion of surgical technic would better evisualize what happens to the abdominal muscles when various types of incisions are made in specific areas of the abdomen; it is important to realize that the length or direction of a skin incision does not always indicate the amount or type of damage done to the muscles beneath that area. Detailed discussion of vessels, nerves, types of sutures, and specific surgical procedures other than the relation of incision to muscle damage will not be considered.

In this manner it will be possible to more clearly demonstrate why specific muscle reeducation is necessary after any abdominal surgery (or after a pregnancy) in order to better evaluate the amount and type of reeducation that is either indicated or contraindicated with the various kinds of surgical incisions.

Abdominal incisions can be in any position that is necessary to expose the underlying structures and organs. In general, incisions follow definite patterns, for definite reasons. These incisions are usually two and one-half inches to three inches long, and rarely ever less than this. They can be readily elongated in either direction if greater exposure (more space) is required.

Abdominal incisions are divided into three classes by direction: transverse (or lateral); transverse bordering on the oblique, and vertical.

As often as is possible, skin incisions are made in the general direction of the nerves and vessels. Incisions across the nerves cause muscular paralysis, weakness of the abdominal wall, diastasis and cutaneous paresthesia. The motor nerves usually can be seen transversing the muscles, and they can be retracted; certainly they are spared if it is at all possible. Incisions in the skin and fascia can be as long as desired without regards to the sensory nerves, since cutaneous paresthesias are temporary. Since these superficial paresthesias are present for an indefinite short duration, it is an important fact to remember in the applications of moist or dry heat, or ultraviolet, for a few weeks after surgery.

Beneath the skin incision, each tissue layer is opened separately, step by step. These layers in order are the superficial fascia, deep fascia, muscle, deep layer of deep fascia (the transversalis fascia) and the peritoneum. A connective tissue layer with more or less fat lies between the deep connective tissue (transversalis fascia) and the peritoneum. This is quite thick in the upper and middle regions but is almost absent behind the rectus below the umbilicus. These layers often are opened in different lateral planes by which, with strong muscles intervening, the muscles and deep fascia are the main protection against herniation. Fascia is preferably cut in the direction of its fibers. If openings must be made through a muscle, the fibers are separated by blunt dissection. Muscles sometimes can be retracted. In many instances a muscle cannot be retracted completely to its edge so that some of the muscle substance must be cut across the fibers. It is preferable to suture the cut fibers whenever possible.

The principle muscles to be considered are the rectus and piriformis anteriorily — in the midline group; the internal and external oblique and transversalis laterally; the psoas, quadratus lumborum and latissimus dorsi reinforced by the lumbodorsal fascia posteriorily. A strong aponeurotic layer (or sheath) surrounds the upper three-fourths of the

rectus, but is absent posterior to the rectus in its lower fourth — that is, below the linea semicirculus. This is an important landmark. Above this line the posterior portion which is called the posterior rectus sheath blends into the transversalis fascia. Leithauser particularly points out that in order to render early ambulatory activity safe and relatively comfortable, one essential is that incisions do not transect the fibers of the posterior rectus sheath. He also insists they shall not transect the fibers of the transversalis muscle.

Generally, the lines of clevage of the abdominal skin are nearly transverse. For this reason, vertical scars tend to stretch, while transverse scars have a tendency not only to fall together more easily, but they also tend to contract. Not only do transverse scars become less conspicuous in time, but for these same reasons it becomes apparent that vertical scars particularly can be pulled apart to widen the scar, or even to weaken sutures if incorrect exercises are given.

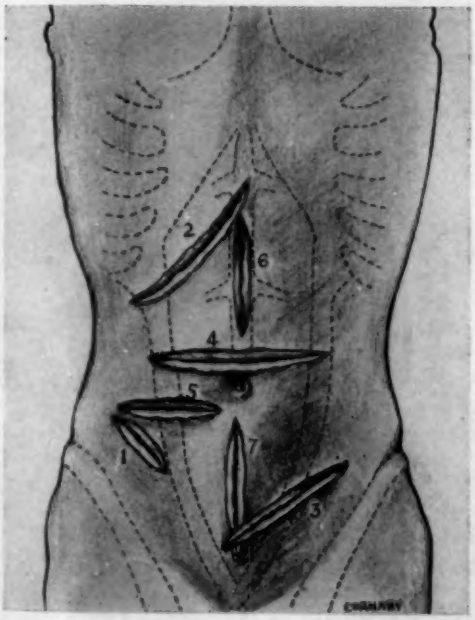

Figure 1. Abdominal skin incisions, with underlying anatomical landmarks shown in dotted lines.

The first illustration demonstrates locations where abdominal incisions are most commonly made and are at those sites through which the majority of abdominal pathology is most readily accessible.

Numbers 1, 2 and 3 on Figure 1 are transverse incisions bordering on the oblique; numbers 4 and 5 are transverse, while numbers 6 and 7 are vertical.

The purpose and choice of incision depends upon the underlying pathology and the ease with which it can be approached as to space and location, to facilitate the necessary curative measures.

Number 1 illustrates the usual McBurney incision for appendicitis; it is located about a point also named for McBurney, which is a signpost in the diagnosis of appendicitis. This incision can be extended to reach the pelvic organs, although other incisions usually are preferred. A similar incision, almost parallel to McBurney's but lower, and extending nearer the midline is used on either the right or left for hernia repair.

Number 3 on the right is representative of an incision to operate upon the sigmoid or rectum. Its greatest use is for cancer in that area.

Numbers 1 and 3 are designated as transverse oblique incisions located in the lower right or lower left quadrants.

The other transverse oblique incision, number 2, is that which is often used for gall bladder surgery. It is in the upper right quadrant, approaching the midline.

The vertical incision, number 6, above the umbilicus is used to expose the stomach, liver, pancreas and intestines. The vertical incision, number 7, below the umbilicus exposes the uterus, Fallopian tubes, ovaries, bladder and uterus. These vertical incisions are never in the midline, but to the right of the midline, and usually are called midrectus incisions.

The transverse (or lateral incisions), numbers 4 and 5, will expose the same organs as will the vertical incisions and, depending upon the need, these transverse incisions can be above or below those illustrated here—which are one inch above and below the umbilicus. Occasionally a gall bladder incision will be lateral; often pelvic incisions are placed laterally and low enough that the scar will be hidden by the pubic hair.

These lateral incisions are very definite examples which illustrate that what ones sees on the skin does not always mean that the deeper structures and particularly the rectus muscles are cut in similar fashion. More often, beneath the lateral skin incisions, the deeper layers are cut on planes similar to those made when a vertical skin incision has been used.

Figures 2, 3, 4 and 5 show where the skin incisions are placed in relation to the muscles and muscle layers. The lines are shown through the various muscle layers to illustrate relationship only, not any actual incisions.

Figure 6 shows a transverse section across the abdominal wall above the linea semicircularis. Note particularly the relationship of the posterior rectus sheath, the transversalis fascia and muscle.

Figure 7 demonstrates a cross-section below the linea semicircularis. Here the posterior rectus

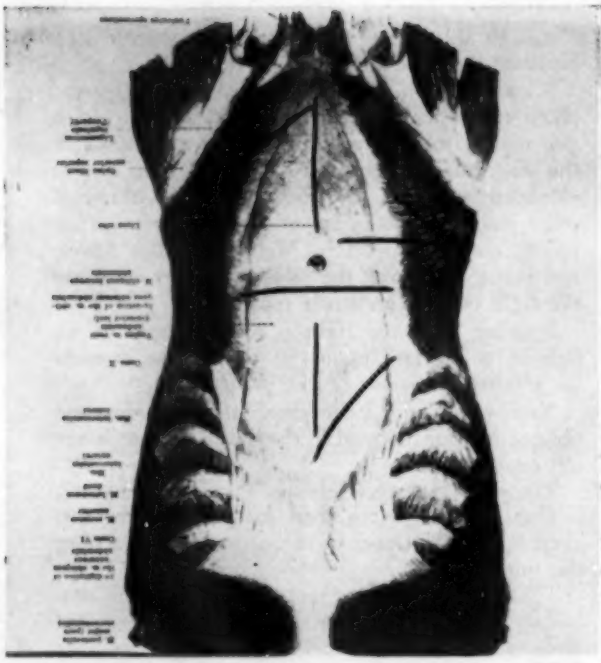

Figure 2. Muscles of the abdomen (viewed from in front).

Figure 3. Muscles of the abdomen, 2nd layer (viewed from in front).

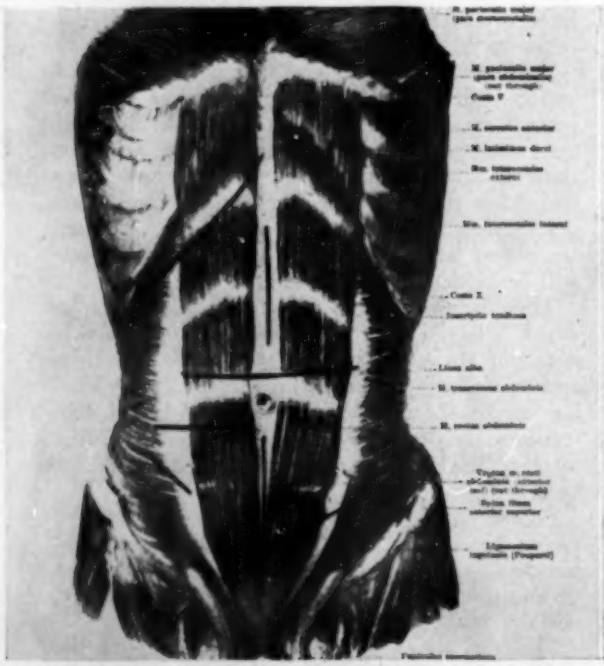

Figure 4. Mm. recti abdominis (viewed from in front).

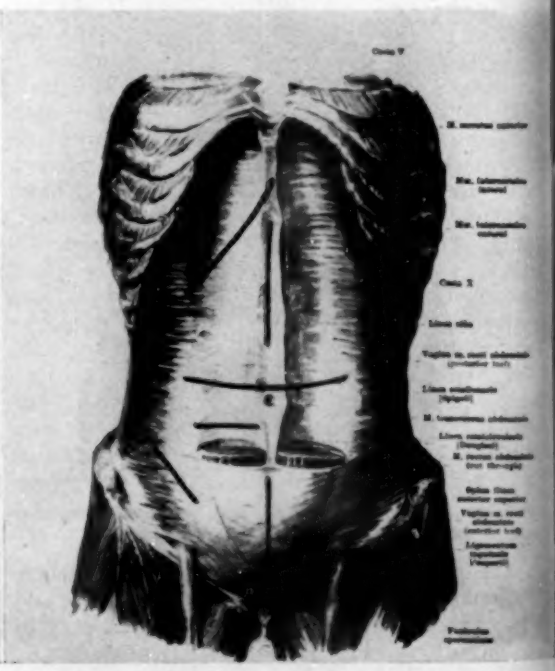

Figure 5. Muscles of the abdomen, 3rd layer (viewed from in front). (Mm. obliqui abdominis have been completely removed; furthermore on each side the m. rectus abdominis and the anterior leaf of its sheath have been removed on each side in their upper two thirds.)

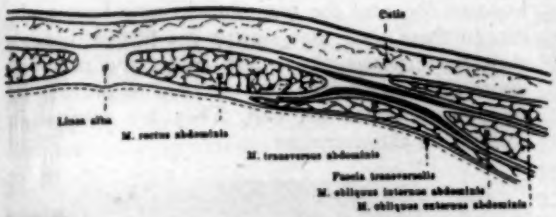

Figure 6. Transverse section through the abdominal wall above the linea semi-circularis (Douglasi) (after W. Braune).

Figure 7. Transverse section through the abdominal wall below the linea semi-circularis (Douglasi) (after W. Braune).

sheath is missing and the transversalis muscle does not extend to the midline. The differences in muscle and fascia strength in these two areas are obvious.

These two illustrations must be kept in mind in understanding lateral or vertical incisions in the mid-rectus area.

An incision for a kidney operation is shown in Figures 8 and 9. Certainly incisions of this type require very careful muscle reeducation, since the incision involves the back as well as the lateral abdominal muscles.

The following is a consideration of these various incisions, then, in broad generalities in relation to the various muscle groups involved.

Vertical incisions can be made anywhere between the ensiform cartilage and the symphysis pubis. While frequently necessary, vertical incisions are not ideal because the pull of the muscles is on the suture line, and the lateral pull of the transversalis and internal oblique can be very great after surgery. As previously mentioned, the posterior rectus sheath and fibers of the transversalis muscle must not be transected. This relationship was demonstrated on the cross-section illustrations. If such an incision must be made with a vertical incision above the umbilicus, it is obvious that the abdominal wall in that area will be greatly weakened. Therefore, muscle reeducation must be more specific and must be given with more caution.

Preferably vertical incisions are made to the right of the midline through the anterior fascia external to the inner edge of the rectus; the right rectus muscle is retracted outward or, if more exposure is needed, both recti are separated by retraction. Figure 10 shows the incision through the anterior

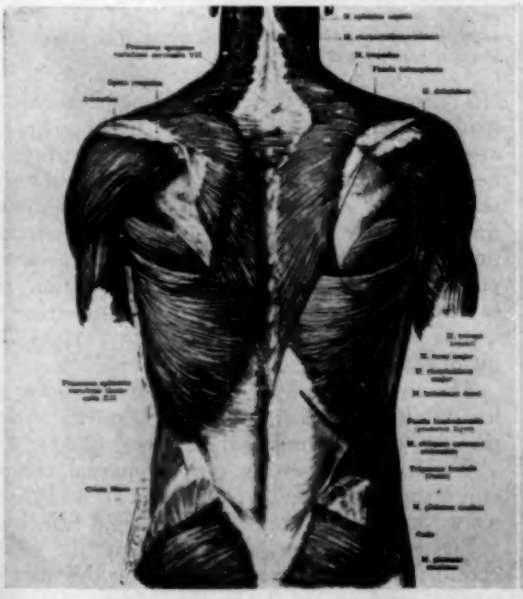

Figure 8. Broad muscles of the back (viewed from behind).

Figure 9. Muscles of the abdomen (viewed from the right side and the front).

rectus sheath.

The next illustration, Figure 11, shows retraction of both rectus muscles with the posterior sheath still intact.

The posterior sheath and transversalis fascia are incised at that point and in closing must be sutured. The overlying muscle strengthens this incision. Again Figure 6, showing the cross section in this area, will serve to clarify this point. Incisions passing directly down through the rectus muscle or toward the lateral border of the muscle, divide the motor nerves and cause a paralysis of that part of the muscle internal to the incision; hence they are used as infrequently as possible.

In vertical incisions below the umbilicus in the lower fourth of the abdomen, the incision can be made between the two recti as before, but actually it is better to open the anterior fasci laterally even as far as one inch from the border of the recti. The pyramidalis and recti are then retracted outward and the abdomen entered behind the muscle. Figure 12 shows the pyramidalis muscle.

Vertical incisions which must pass the umbilicus are curved to the left to avoid the round ligament of the liver.

Transverse incisions usually are transverse through the skin and superficial fascia only, and are used to avoid the vertical scar. Frequently, after opening the skin and superficial fascia transversely, vertical incisions of the anterior muscle sheath are made and the structures beneath are opened as if a vertical skin incision had been used.

On the other hand, lateral incisions may have to go across the midline and, for purposes of necessary exposure—as for instance to have the fullest possible access to the stomach—the incisions beneath the superficial fascia may also have to be continued horizontally, and the recti muscle may have to be cut. In these cases, stay sutures are placed through each recti muscle above and below the proposed division of the muscle and are held to prevent retraction of either cut end. They are sutured in completing the operation.

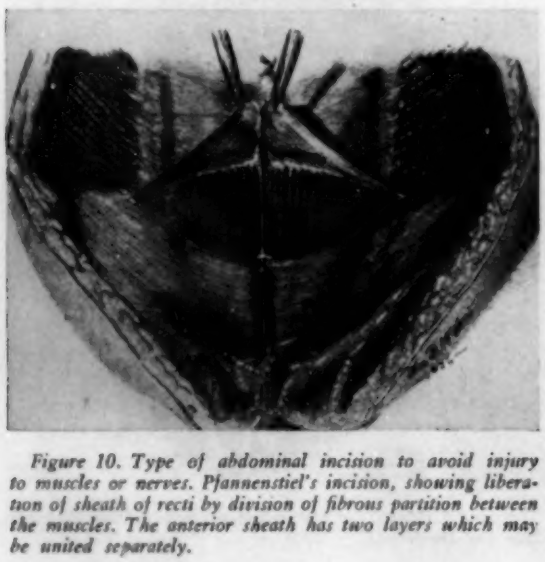

Figure 10. Type of abdominal incision to avoid injury to muscles or nerves. Pfannenstiel's incision, showing liberation of sheath of recti by division of fibrous partition between the muscles. The anterior sheath has two layers which may be united separately.

Figure 11. Pfannenstiel's incision, showing peritoneum exposed, to be divided vertically.

Appendiceal incisions.—Gridiron incision (McBurney's incision, McArthur's incision), a muscle-splitting operation in which the skin is divided obliquely (better transversely) and parallel with the inguinal ligament, 4 cm. medial to the anterior superior spine of the right ilium. The length of the incision varies from 2 to 9 cm.

Transverse or transverse oblique incisions are made by separating the fibers of the muscles, one after the other, identifying and protecting the nerves, especially those lying between the transversalis and the internal oblique muscles, holding the muscles apart by suitable—and as little—retraction as possible, while the transversalis fascia and peritoneum are incised and the operation performed. This type of incision is used to expose the lateral parts of the abdomen in any of the four quadrants.

The smaller the split through the muscles, the less the damage that occurs. It becomes obvious that the very splitting of the external oblique with a similar small splitting of the internal oblique, which can be done in performing an appendectomy, places little or no strain upon the split muscles.

The longer the incision or splitting, the greater becomes the problem, and the greater the need for muscle reeducation. It is particularly true with hernia repairs since the cause of the hernia is basically due to weak fascia and a congenital relaxa-

tion of the inguinal ring. Figure 7 again shows this relationship. Muscle reeducation which strengthens all the lower midline and lateral abdominal muscles should help to prevent recurrent hernias, even as the exercises will aid in the healing of the one just repaired.

The incisions for kidney operations are made through the lumbar (iliocostal) region. These incisions vary with the anatomical and pathological variations in different patients. Most frequently the incision begins at the lower border of the twelfth rib at about the external margin of the quadratus lumborum muscle. The incision is carried downward and slightly forward to a point about midway between the twelfth rib and the crest of the ilium where it curves forward parallel to the crest of the ilium as far as is necessary. When the skin and superficial fascia are divided, the latissimus dorsi muscle is then divided as far upward as is necessary to give adequate exposure at the upper angle of the wound. At least a portion of the serratus posterior inferior muscle which lies beneath the latissimus dorsi is divided at the same time. The posterior fibers of the external and internal oblique muscles which cross the lower portion of the wound are divided when necessary. The transversalis (lumbar) fascia is next incised and then the perineal fascia is separated from the quadratus lumborum and psoas muscles as far as necessary for exposure. This fascia is preserved intact to recover and support the kidney when the operation is completed.

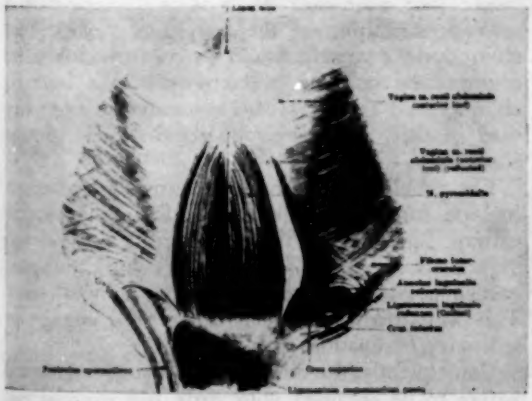

Figure 12. Mm. pyramidales (viewed from in front). (The anterior leaf of the sheath of the rectus has been partially dissected off and reflected.)

It is obvious that, with any retraction of a muscle or muscles, there will be bruising. The muscle is stretched, and the greater the distance of stretch and duration of the stretch, the greater the damage. Minute blood vessels are torn away in the retraction just as they are torn or cut in muscle splitting or in transversely cutting the muscle fibers—with resultant hemorrhages or oozing of blood into the muscle tissue. It is equally obvious that the technic of the surgeon is important. All the minute vessels cannot be tied in any muscle, but delicacy and tenderness in handling definitely affect the amount of hemorrhage to be absorbed during healing. Blood clots can organize with a growth of fibrous tissue in them, leaving permanent scar tissue in the muscle itself. Mechanical retractors in some surgeons hands may be brutal, or they may be tender. Considering only the effect upon muscles, the muscle injury may be less in long or moderately long operations than it is in a very short surgical procedure where the surgeon may be fast and "slash" through with a complete disregard to tissue trauma. In some instances such speed may be a life-saving measure and muscle trauma of minor importance. Only the surgeon is the judge of this matter.

At the conclusion of every operation the surgeon writes down exactly what he has done. It is wise to read and understand these reports concerning the patients assigned to you for therapeutic exercise. It also is wise to observe the different surgeons and become acquainted with their various technics, since surgeons frequently have individual variations of routine (standard) surgical procedures. One of the most variable differences is in the method of closing a wound, both as to type of stitches and kind of suture material used. You will discover much discussion and argument about wound closing as it relates to exercise and early ambulation. Consequently it must be taken into consideration.

All things considered, it would appear that muscle reeducation can and should be as scientific and specialized after abdominal surgery as muscle reeducation after poliomyelitis. While the lack of it may not be too serious, certainly the correct use of it can be of very great importance for many reasons.

Exercises for the recti muscles should be considered first in every abdominal condition. An incision may be entirely lateral to the recti, but it is the strength and tone of this muscle that keeps the abdomen flattened and the abdominal contents in their more normal positions.

In pregnancy, the recti are stretched lengthwise; in mid-rectus surgery, laterally. Thin, weak fascia often is separated during pregnancy; in surgery the fascia has been cut. The end result is the same—a weakness and/or a separation or diastasis recti due to pregnancy; in surgery, a weakness, and sometimes an eruption of the suture line with permanent weakness in any of the sutured layers which may proceed to herniation.

Pelvis tilting in a back-lying position is safe in every abdominal condition and the only one that

exercises the recti muscles without any strain, while a definite contraction can be obtained from the origin to the muscle insertion. The injured muscle thus has activity to facilitate healing, and increased strength while the activity will not itself affect other abdominal muscles when done correctly.

There are other exercises which cause contraction of the recti muscles, but the amount of pull required to do them is too great for weak or injured muscles. Instead of the muscle being shortened throughout its length during a contraction, the upper or lower portions may be weakened and the two muscles even separated in an effort to take up the excessive pull and perform the activity. In sincere efforts to prevent emboli in the lower extremities, too often the prescribed exercise is to raise both legs together with the knees straight. This can put too strong a pull on the stabilizing lower recti. Unless static abdominal contractures are performed before leg raising, one way to accomplish this is to bend the knees first before raising both legs simultaneously when the recti are weak, or to raise only one leg at a time. Bicycling, a favorite, can be done safely or can be done with harm, depending upon the way the legs are raised to perform the exercise. Similarly, but not to such a degree, we realize the amount of pull put upon the upper recti when the head and shoulders are raised, or when the individual attempts to sit up with his legs straight. Obviously the use of such procedures must be done with caution.

Abdominal breathing with expansion of the abdomen in inhalation is another pull which can affect vertical as well as lateral incisions. It depends upon the type of incision definitely, but it further depends upon the type of abdomen. For example, an individual with a tense or rounded abdomen, either from overweight or temporary distension, had best not have his abdomen further distended with early abdominal breathing at the expense of a suture line, and possible herniation, no matter where the incision, since all the anterior muscle fibers take part in this motion. On the other hand, a pendulous abdomen, though fat, or a dehydrated abdomen, or one that is completely without any muscle tone and is soft, thin, or doughy, needs the stimulation of abdominal breathing to increase general muscle tone.

Lateral abdominal exercises will not be discussed in detail in relation to the various operations. To well trained individuals, the indications and contraindications for such exercises, particularly on transverse and transverse oblique incisions, are obvious. But, certain things should be stressed since they are so obvious they often are forgotten. One of these is to mention that the method of testing an internal oblique muscle by lifting one leg across the other with the foot rotated inward and the knee straight is a safe exercise for all abdominal incisions. Another is to keep in mind that the upper right quadrant is definitely weak after a gall bladder operation. Exercises are needed for this weakness which later should include upper trunk twisting, but such exercises should be developed slowly and with caution.

Exercises for the lateral abdominals must be developed, though cautiously also, following kidney incisions. Exercises to strengthen the long back muscles by hyperextension should be done first and are safe to be started early. Also a patient may protectively develop poor posture more readily after a kidney operation than after an anterior abdominal incision and should be watched closely for this deformity.

In conclusion, from this discussion it would appear that early ambulation alone will not replace muscle reeducation and strengthen muscles that have been bruised or even cut during the surgical procedure. If the recti muscles were weak before surgery, obviously one or both of them becomes weaker when abdominal surgery has been done in that area, and weaker by disuse alone in any abdominal surgery, even though the incision is in a lateral plane.

Unless an individual is an athlete in constant training, or is made cognizant of these facts by proper teaching, we can assume that the majority of the adult public have weakened recti muscles before they were ever ill. It is as obvious that a constant stretching of the recti puts the external obliques on a stretch also. This overstretch can be counteracted only by overactivity of the internal obliques and transversalis. Few activities normally used in daily living exercise these muscle groups adequately.

The problem of strengthening muscles after an incision for a kidney operation follows a similar pattern. Not only are the lateral trunk muscles too little used in daily living, but the back muscles, particularly the extensor group, may be weak also. This is particularly true of those who engage in sedentary occupations.

Consequently, the other desired results mentioned before to be obtained with early bed exercise fall into place.

Protectively, an incision is sore and the shorter distance between two parts hurts least; consequently there is frequently a protective bending toward that point. This may become a habitual position unless correct exercise instruction is given early. Early activity also hastens healing so that the soreness decreases more rapidly.

Finally, while weak and injured muscles are being strengthened by the correct bed exercises,

and other normal muscles are being overdeveloped to carry an additional work load (as for instance the overdevelopment of the arms and shoulders to facilitate the use of crutches) the all important factor of preventing complications by any activity, and particularly the complication of emboli, can be accomplished even as we give exercises that will correct tight gastrocnemii or hamstrings, or strengthen other muscles that will tend to correct a functionally incorrect standing position.

After preventing or even correcting deformities, the next logical step is to put the corrected positions with strengthened muscles into practical use so that the patient may walk right out of the hospital in the "position of election" of good posture—which is correct body alignment.

Certainly, then, the combination of early therapeutic exercises with early ambulation will further shorten convalescence.

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Exhibits Available

Posters

1. Set of two, entitled "Physical Therapy Procedures," each containing eight black and white photographs of physical therapy activities.

2. Set of two on "Posture." Good and poor postural positions are shown, together with exercises for correction of faulty posture.

3. Poster exhibiting reprints available in the physical therapy field.

4. Album photographs of "Posture" showing corrective exercises.

5. Two posters, with color prints, the first showing "General Physical Therapy Procedures," and the second, "Detailed Early Exercise Technics."

Slides

1. Set of 38: "Physical Therapy Procedures." Title slides are included in the group.

2. "Course Content in Physical Therapy"—18 slides showing material covered in physical therapy training. Especially suitable for talks to student groups.

A script describing the slides is included with the sides.

Album

Photographs of physical therapy procedures.

The slides and procedures album may be borrowed from the National Office of the American Physical Therapy Association, 1790 Broadway, New York 19, N. Y. All other requests and correspondence regarding exhibits should be directed to Maxine Schuldt, Exhibits Chairman, 1680 Mission Street, San Francisco, California.

Due to an extended printers' strike in Chicago, the March-April issue of THE PHYSICAL THERAPY REVIEW has been considerably delayed. However, work is progressing and the May-June issue should be only slightly late.

Posture Training

For Adolescents

Carolyn Bowen

The physical therapist in a state program for crippled children's services is but one of a team of itinerant professional workers who serves in the diagnostic clinics. The public health nurses who administer the clinics are from the local health departments and, of course, remain in the area. It is largely through these local public health nurses working with the patient and parents in the home that the follow-up work in posture, initiated by the physical therapist in the diagnostic clinic, is accomplished.

The patients requiring the attention of the physical therapist are the cases of functional malposture, postural scoliosis or those cases who have benefited from intensive posture work postoperatively and who still need prolonged supervision through crippled children's services clinics.

Purpose of Posture Teaching

The purpose of posture teaching in the crippled children's services diagnostic clinics is to create within the patient's mind an awareness of good body alignment and a knowledge of ways to achieve it through proper balancing of body in rest and activity. It is the responsibility of the physical therapist to study the individual patient's body architecture; to outline an appropriate exercise program; to demonstrate these exercises at the clinic and to see that the patient has some simple, clear, and brief instructions for home practice.

It is equally the responsibility of the physical therapist from the very first clinic conference with the patient to instill in his mind the relationship of his therapeutic exercises to improved poise and economy of energy output in the mechanical use of his body. Later, the physical therapist can help him to analyze and correct his own faulty posture habits. The technic of attempting to create such a mental concept as mentioned above will vary with the age, type of personality, intellectual capacity, and emotional drive of the child.

Motivation

The physical therapist must be alert to all resources for motivating the child to want to improve his posture and, once this desire has been aroused, to sustain this "drive" while he is under her supervision. She must keep in mind constantly the adolescent's total health and personality as well as his particular sphere of interest and frequently will need to challenge the patient to further effort. Posture teaching requires a vigorous use of the imagination as well as the muscles of both the physical therapist and the patient. The following examples illustrate some factors in motivation. An adolescent girl interested in becoming a social secretary will work harder to improve her posture when she is made aware of the fact that one of the requisites of employment is an acceptable carriage. A "budding architect" can easily relate the principle of stress and strain in building houses to the result of stress and strain on his body architecture. A tactful remark from the physical therapist regarding a better fit of the adolescent girl's clothing as a result of improvement in posture or the simple device of having an adolescent boy keep a record of his increase in chest expansion when breathing exercises are required over a long period of time often will supply the reassurance needed and may make the difference between a lagging or prolonged interest in continuing the exercises. Another tool that the physical therapist can employ to interest an adolescent in continuing his daily exercises at home is to require him to write in his own words in a loose-leaf notebook at clinic the exercises which have been demonstrated that day. She will need to check the narrative for accuracy and might encourage those patients with a flare for drawing to sketch some exercise equipment that could be improvised at home, such as overhead pulleys to stretch shortened pectorals or perhaps diagram positions used in the more complicated exercises. Eventually such a notebook will become the patient's personal record of progress in posture control. There are many other devices and methods of arousing and sustaining the adolescent's interest in posture, but in order for her teaching to be effective the physical therapist must respect and employ the simple tenets of sound psychology at

State Health Department, Smith Tower, Seattle 4, Wash.

all times.

FACTORS INFLUENCING THE TEACHING PLAN

Because the patient is an adolescent he usually prefers to do his exercises unobserved at home and with a minimum of assistance from his parents. With the exceptions of nursing supervision of the public health nurse at irregular intervals plus limited and often misguided enthusiastic parental help, the adolescent patient is largely "on his own" for periods of three or more months at a time. Therefore, it behooves the physical therapist to use methods of teaching that will make certain that the patient has a clear idea of his home exercise program and also simple written instructions which he himself may well describe. The physical therapist needs

Figure 1. Making a pedograph.

to instruct the parents in the purpose of the exercises and the method of executing them at home since parental interest and cooperation must be gained to secure any degree of response from the patient to the treatment outlined. The pediatrician's and orthopedist's reports (frequently including pedographs, x-rays and photographs) and the public health nurse's report of the home situation together with observation of the (undressed) child's posture and indicated manual testing of muscle strength by the physical therapist provide the latter with a basis for making a careful analysis of the patient's posture before she outlines a program of therapeutic exercise to be demonstrated at the clinic and for the patient to carry out at home.

THERAPEUTIC EXERCISE

Five components of therapeutic exercise have to be considered by the physical therapist in planning a program of postural exercises for adolescent children in the diagnostic clinics; namely, rest, relaxation, balance, flexibility and strength. It is important that the physical therapist realize the relation of adequate nutrition, which includes rest, to good posture so that she may emphasize the significance of rest to the malnourished and fatigued patient whose faulty alignment becomes her task to correct. The physical therapist's role in treating such a patient with postural deviations is first to instruct him in an adequate rest program. Then in addition she teaches him to recognize general body and segmental muscle tenseness; that is, residual contraction which remains in the muscles after the patient no longer wills the part to move and which is wasteful of energy. This tenseness, if allowed to persist, results in the phenomenon of fatigue. When the patient understands the cause of fatigue, he can readily appreciate how undesirable postural attitudes and mechanically wasteful movements develop. Thus he becomes interested in learning how to relax which may be the primary step in the correction of his careless posture habits. He also becomes interested in channeling his energy into well balanced, dynamic posture. The physical therapist teaches the adolescent patient conscious relaxation of the body, both general and local, by the use of imagery, such as having the patient pretend that he is sinking his body into a down-mattress or by the familiar basic technics of relaxation as described by Jacobson. Balance is taught both through imagery, such as the patient imagining his body to be composed of four blocks arranged in a column so that the weight is equally distributed throughout, and also through continual self-correction of body alignment before the mirror, thus observing the simple laws of physics as applied to stance and movement in the human body. Once the adolescent's general nutrition has shown definite improvement and the patient has demonstrated ability to relax sufficiently as well as an understanding of the principles of body balance, the physical therapist can finally proceed to the remaining objectives in the exercise program which are flexibility and strength.

Adolescent patients who attend the clinics for diagnosis and who receive the orthopedist's recommendations for "postural exercises" present a variety of postural deviations attributable to many causes including faulty joint structure or more often to adaptive shortening of various muscle groups which, if permitted to continue shortening, would result in fixed contractures. The physical therapist must understand the physical cause of the patient's malposture as well as consider the psychic factors, both of which have been mentioned heretofore, and then plan the corrective exercises and activities. Since stretching muscles to their full physiological length helps to prepare them for optimum potential funtion, the routine of stretching tight muscles

followed by strengthening the weak ones will, in many cases, serve to prevent possible deformities and to correct developing deformities. When tightness is present in one or more muscle groups, the physical therapist instructs patient and parents how to stretch these muscles to obtain greater range of movement. Concurrently, the physical therapist demonstrates exercises and suggests activities that will increase strength of the weak muscle groups which are frequently the opponents of those that are shortened. In general, the physical therapist proceeds with forced motion by moving the insertion of a muscle away from its origin at the same time stabilizing the latter. The technic of stretching muscles may be done by three methods; namely, by one long sustained stretch; by a "bobbing" motion at the end of the stretch; or by "taking up the slack" before pulling or stretching (Mennell). In

Figure 2. Stretching exercise.

addition, stretching may be done to a slow count for a few seconds. For more effective results when the full stretch of the muscle group has been achieved, the stretch should be maintained for a period of time and augmented daily. A practical approach to stretching of tight muscles in adolescents who are supervised in these infrequent diagnostic clinics is for the physical therapist to demonstrate to him ways by which he can stretch himself. For example, the patient may be taught how to stretch his posterior calf muscle group as follows: in standing position with the knee and hip held in extension, the heel in contact with the floor, foot slightly inverted, he simultaneously passively dorsiflexes the foot and moves the head and upper trunk toward the wall, supporting himself by pressing his palms against the wall. This stretching may be increased from an arbitrary slow count of five the first day to ten the next, and so forth, until the patient can tolerate a maximum prolonged stretch. Frequently the stretching of muscle groups can be incorporated into the patient's rest period. For example, a folded blanket or a small hard pillow can be placed just below and including the inferior angles of the patient's scapulae while he is resting in a supine position with arms externally rotated at shoulder level to secure a prolonged stretching of tight pectorals or other tight structures of the rib cage.

The physical therapist knows that the range of motion varies with every individual and that too great a degree of flexibility without the counterpart of a proportionate increase in degree of muscle strength is disastrous to efficient body mechanics. In order to develop strength or power in a muscle group, the patient performs the exercise actively against the resistance of gravity or some outside force. The greater the amount of resistance to overcome, the greater is the number of ultimate muscle units responding in the muscle group involved. Every exercise performed vigorously a few times is consequently more effective in developing muscle power than numerous half-hearted and ineffectual essays. The physical therapist instructs the adolescent patient to put effort into his exercises and since slow motion is wasteful of energy (Brunnstrom), she teaches him to employ medium speed in performance for greater physiological efficiency. She also points out the beneficial effects of a short rest period following a series of reciprocal movements. For example, in supine lying alternate leg raising simultaneously with head-neck flexion for strengthening the abdominals, the entire sequence of raising and lowering head and each leg is performed several times before the regular rest period after which the next series is begun (Brunnstrom). The well known DeLorme method of progressive resistance exercise for developing muscle power and hypertrophy is successful in producing results when conducted systematically under close medical and physical therapy supervision as in a hospital or treatment center. In the crippled children's services diagnostic clinics this technic of muscle strengthening is impractical for the physical therapist to teach to the average clinic patient for home use; however, in some cases an adaptation of its principles may be formulated on an individual basis for selected pathological conditions of the knee by the use of graduated homemade weights (bags weighted by sand, rocks, bricks, books, etc.) properly attached to the subject's shoe for resistive contraction of quadriceps femoris. If asymmetrical exercises for building muscle strength are indicated, the physical therapist

always must include an adequate number of general body strengthening exercises to offset any tendency toward overcorrection of a particular muscle group.

Significant Factors in Planning a Program of Exercises

The physical therapist plans the exercise program from a long range point of view. She initiates it by starting the patient on simple and moderately strenuous exercises and progresses to an increasingly varied, strenuous and time-consuming program. In augmenting the exercise schedule the physical therapist needs to watch the patient's interest and adapt it to the home situation so that she may not be insisting on a response that is too difficult for him either from the physical or the social angle. For example, an adolescent who lives in a rural area necessitating long bus rides to and from school and where he is confronted with a multiplicity of farm chores after school will seldom be encouraged or find time enough in the day's crowded schedule to perform his exercises more than one short period a day if he allows himself any time for an adequate breakfast, sufficient fun, and sleep, all of which are equally important to his general growth and development. The physical therapist can assist the adolescent patient greatly in helping him to select work and play activities that will supplement his therapeutic exercise program by providing the opportunity to develop coordination, balance and endurance. She should be alert to see that the patient's sports and daily activities support rather than neutralize his exercises. For example, an adolescent may have benefited from an extensive corrective program for dorsal epiphysitis including frame treatment, only to be discovered lifting and carrying heavy grain sacks, or washing dishes in a restaurant where the low sink requires frequent long periods in a stooped position. Or perhaps a fourteen year old girl recently recovered from an old Perthes' hip condition confesses that she "just loves to jitterbug!"

In summary, the physical therapist in a state program for crippled children's services needs to possess a scientific knowledge of the application of the various components of therapeutic exercise; that is, rest, relaxation, balance, flexibility and strength, as well as the implications of related psychic factors in order to teach general posture correction and control to adolescent patients in the diagnostic clinics with effectiveness.

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Physical Therapy Section:

Its Scope and Employment Opportunities

Part V*

Physical Therapy in the Physician's Office or Clinic Group

A number of physicians in this country have come to recognize the benefits of establishing a physical therapy program as an integral part of their private practice. Moreover, physicians are becoming increasingly aware of the many ways in which physical therapy can serve their patients.

The physical therapist working in the office of a physician, or in a clinic group, necessarily adapts her program to the talents and interests of the medical personnel with whom she is associated. If she is working with one physician, her patients may fall into a rather specialized group who are afflicted with one or another of a few specific disabilities. As a result she may become particularly proficient in certain phases of her profession. The scope of the physician's practice will determine her activities, and she learns thoroughly his methods in dealing with his patients.

With the exception of the doctor of physical medicine, the orthopedist perhaps finds the greatest need for an office physical therapist. Many of these men have had wide experience with physical therapy as it applies to their specialty and often keep in close touch with the therapist in planning the patient's program. Others may prefer to leave responsibility for details of treatment largely to the therapist. A clinic group employing a physical therapist may consist of several physicians in one specialized field, or it may include a variety of specialties such as pediatrics, neurology, psychiatry, and orthopedics. In this situation there is likely to be somewhat more variation in the case load.

Space for physical therapy in the private physician's office may be limited. If there is no room set aside for the physical therapist's work she may be obliged to use the physician's examining rooms during the morning hours when he is absent from the office, or plan her treatment schedule around his appointments. Ideally, the physical therapist should have a room reserved for her patients. A fair sized "gymnasium" which may be used as a single large room or curtained off into cubicles lends itself well for the purpose. Individual rooms equipped with special electrotherapy, hydrotherapy, exercise or other special apparatus are also desirable for carrying on the program without interruption.

In many private offices the physical therapist may be called upon to assist the physician in numerous other capacities. He may ask her assistance in helping with physical examinations, applying plaster casts, trimming casts, and fitting braces. When other staff members are ill or on vacation, she may act as secretary, receptionist, bookkeeper, and general office coordinator. She must be prepared to accept these responsibilities should the occasion arise.

The working day of the physical therapist in the physician's office is likely to be longer than that in a hospital, school, or other institution. The therapist may regulate her own work quite accurately, but it is impossible to predict delays which may cause the physician to drop behind his schedule. As long as the physician remains in consultation his staff also must remain. However, many physicians make compensation for this by allowing extra hours or days of vacation whenever the schedule has been particularly demanding.

Acknowledgment: Material for these articles was contributed by the following: *Barbara Fitch*, B.A., M.A., Research Associate, Division of Physical Therapy, Stanford University, Calif.; *Helen Kaiser*, R.P.T., Director of Physical Therapy, Division of Physical Therapy, Duke University School of Medicine, Durham, N.C.; *Cecelia A. Leverone*, R.P.T., in the office of Dr. Louis G. Howard, Boston, Mass., and *Virginia Whitfield*, B.S., M.E., R.P.T., Assistant in Physical Therapy, Division of Physical Therapy, Duke University School of Medicine, Durham, N.C.

The salary received for office physical therapy varies, of course, with the position. In many instances the physician depends upon his therapist to a great extent and feels that she should be well rewarded. He is not bound by hospital rulings concerning salary and advancement. As the physical therapist becomes familiar with the physician's way of carrying on his practice and learns to work well with him she becomes increasingly valuable to the office program and may be expected to take considerable responsibility.

The general pattern of physical therapy in a physicians' group may be similar in many ways to that in a small general hospital. Space is provided for treatment rooms and a regular schedule is planned on a seven or eight hour-a-day basis. The type and amount of equipment available will depend on the patient load. Provision for underwater therapy may be included. The therapist usually has the responsibility of seeing that equipment is kept in good running order and that new apparatus is obtained as needed.

Some physical therapy programs have expanded so greatly that the services of two or more therapists are required. When this occurs one therapist may be free at least part of the time to give home treatments.

The physical therapist in a clinic group may be on a regular salary, or the department may be run on a percentage basis. In this case the therapist may have a basic minimum salary and in addition be given a share in the monthly proceeds of the department. Or the whole division may be managed by the physical therapist, in which case she pays overhead expenses, maintains equipment and supplies, and hires assistance as necessary.

In the physicians' group, as in the private office of a single physician, the physical therapist has an opportunity to work closely with the medical personnel. This cooperative effort is recognized and appreciated by the patient, who feels he has careful supervision and maximal opportunity for recovery. As the physical therapist gains in experience and fits well into the office or clinic situation, she becomes an integral part of the staff and has the great satisfaction of knowing she plays an important role in the physician's practice.

Physical Therapy in the Psychiatric Field

The physical therapist is rapidly becoming a valuable member of the team caring for the mentally ill. Mentally ill patients are found not only in psychiatric hospitals but in general hospitals, hospitals for special diseases, convalescent homes and in out-patient clinics.

All patients have an emotional reaction to illness. It is important, therefore, that the physical therapist understand the reasons for such reactions. Kubie has pointed out that the nature and complexity of the psychological forces that have influenced the patient's physical and emotional development must be understood by the therapist.[1] In understanding these forces the physical therapist is better able to develop the proper patient-therapist relationship required for the successful treatment of each particular patient. The establishment of this relationship may prove to be more important than the treatment itself. The correct attitude toward the patient may mean a great deal in his mental recovery. Because of the intimacy of contact and the frequency of visits during the course of the physical therapy treatment, the patient may reveal to the therapist important information which he has not told to the physician. The physical therapist should be able to recognize and report that which is pertinent in the patient's behavior and conversation to the psychiatrist. It is quite possible that without additional training in handling these cases that the significance of the patient's conversation will be lost and that the therapist's well intentioned but misdirected conversation may undo that which the physician has accomplished.

The physical therapist must be taught to look for individual differences in the personalities of patients and how each reacts to his illness. The degree or extent of this reaction depends upon the personality pattern before the illness. The principle reactions of persons to illness are anxiety, depression, dependence, aggression and resistance. During ill health, there will be an exaggeration of the former behavior pattern. It will be necessary for

the physical therapist to differentiate between normal and neurotic reactions and to vary her role accordingly. For example, the person with the debilitating disease may fall into the resistance category. In such a case, the physical therapist by means of the treatment utilizes the opportunity afforded by physical care to reassure the patient and to reinforce the previously determined plan laid down by the psychiatrist. In the case of a patient with depressive personality characteristics, the physical therapist must provide discerning observation of the patient as well as prepare a program designed to divert the patient from his introspective thoughts.

It is important that the therapist, in addition to the medical history, be familiar with the patient's environment, intellectual development, employment problems and social adjustment. After becoming familiar with these, a treatment program is outlined with the aid of the psychiatrist. This may include some form of hydrotherapy and massage for stimulation or sedation; instruction in relaxation for tension and anxiety cases; training in coordination and posture to create a sense of well being and poise; radiant heat or diathermy for the relief of pain, or exercises for group participation as an outlet for emotional behavior.

As every patient who comes for treatment has an emotional reaction to his illness, one wonders if the care of the psychiatric patient can be called a special field of physical therapy. Possibly instead of trying to train physical therapists especially for work with mental patients in mental institutions, it might be well if our training centers were to consider adding to the curriculums of the regular courses in physical therapy additional classes in psychiatry and psychosomatic medicine, as well as providing further opportunities for clinical practice under adequate supervision by the psychiatric department. Certainly much of the technic in handling the mentally ill is acquired by observation of those skilled in its execution rather than by didactic indoctrination. For this reason, a period of at least six months should be spent working in close cooperation with an interested psychiatric staff. The result will be not only additional physical therapists to staff our mental hospitals but improved care for all physical therapy patients.

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(Editors Note: This is the fifth and last part of the "Physical Therapy Section: Its Scope and Employment Opportunities." The entire series covers physical therapy in [1] a state crippled children's service, [2] public health service, [3] the cerebral palsy field, [4] the Veterans Administration, [5] the industrial clinic, [6] a curative workshop, [7] a large general hospital, [8] a small general hospital, [9] a children's hospital, [10] crippled children's schools, [11] the physician's office or clinic group and [12] the psychiatric field. Reprints will be available soon at a cost as yet undetermined and may be obtained from the American Physical Therapy Association, 1790 Broadway, New York 19, N. Y.)

CHANGE OF ADDRESS

All changes of address must be sent directly to the office of THE PHYSICAL THERAPY REVIEW, 4741 N. Paulina Street, Chicago 40, Illinois, by the 20th of the month prior to the publication date, if the next issue is to be received. Both the old and new address must be given. Since the magazine goes out as second class mail, copies are not forwarded.

Section on Education

There have been many requests for information on opportunities for advanced education for physical therapists. Listed below are the programs offered by the approved schools, and specialized courses at the Warm Springs Foundation; Children's Rehabilitation Center; Children's Hospital, Boston, Massachusetts; Syracuse University, the Alfred I. DuPont Institute, Wilmington, Delaware, and the Institute for the Crippled and Disabled, 400 First Ave., New York City.

Physical Therapy Training School, Baruch Center of Physical Medicine, Medical College of Virginia, Richmond, Virginia

Registered physical therapists with a baccalaureate degree who hold the certificate or diploma in physical therapy of an approved school, and who are accepted by the Medical College of Virginia for graduate study, may enroll for a Master of Science degree in Physical Therapy. Applicants must have had satisfactory courses in biology, chemistry and physics, and must be able to pass a reading knowledge examination in one foreign language.

A curriculum adjusted to the individual needs of the candidate is set up by the Physical Therapy School of the Baruch Committee of Physical Medicine and submitted to the Committee on Graduate Study for approval. The minimum residence requirement is one year. At least one-half of the graduate work must be done within the department of the major. Intradepartmental graduate courses include advanced physiology and research, medical physics, living anatomy, journal club and seminar. Extradepartmental work may be taken in medical anatomy, histology and neuroanatomy. A thesis is required and the candidate must have an examination upon the graduate work offered in support of his candidacy for a second degree. Major emphasis in this program is upon the basic medical sciences and the successful completion of a suitable research project.

Tuition fees are prorated on the basis of courses taken by the student. The matriculation fee is $10. All students are required to have a physical examination and pay a student health fee of $30. Incidental fees (activities, contingent and cap and gown) amount to $36.

Candidates eligible for medical school courses may enter at the beginning of the quarter during which the desired courses are given. These commence approximately September 15, January 1, and March 15. Intradepartmental courses are scheduled on the block system between September and June.

Opportunities are available at the Medical College of Virginia Hospitals for advanced clinical practice in general physical medicine, poliomyelitis, or the rehabilitation of the severely handicapped. The clinical facilities of the local Veteran's Hospital (McGuire Hospital), which is a paraplegic center, are also available to students through special arrangement with the Dean's Committee. Similar opportunities are available at the Wilson Rehabilitation Center, maintained by the State Division of Vocational Rehabilitation. Clinical practice carries no college credit.

Bouve-Boston School of Physical Education, Boston, Massachusetts

I. The opportunity will be offered to physical therapists who do not hold a college degree to complete the necessary requirements and receive from Tufts College a Bachelor of Science in Education degree. The length of time required will vary with the credits offered but probably will include one year and a summer session. Such students will be permitted to attend lectures given to the physical therapy students in our regular course, if they desire to do so and as the schedule permits.

II. No refresher courses in physical therapy will be offered.

Children's Hospital School of Physical Therapy, Los Angeles, California

Cerebral Palsy Technic

A three months' course will be offered quarterly during the next year for graduate physical therapists who are members of the American Physical Therapy Association and/or the American Registry of Physical Therapy Technicians. It will include instruction and supervised clinical practice in the physical treatment of cerebral palsy, and

observation in the diagnostic clinics. Lectures on the medical aspects of cerebral palsy will be given by the examining physician and additional ones on related material by other members of the hospital staff. On satisfactory completion of the class, a certificate is granted. The tuition is $150; the enrollment is limited to four. Applications are to be received one month in advance. The opening dates of the classes are March 1st, June 1st, September 1st, and January 3rd.

College of Medical Evangelists, Los Angeles, California

Two months specialization work in fever therapy is available for qualified physical therapists and registered nurses. Starting dates are by arrangement. The work carries no university credit.

Columbia University, New York, N. Y.

The Department of Physical Education in Teachers College, Columbia University, is offering a program in the specialized area of corrective physical education. This program will lead toward the Master of Science degree.

Candidates for the offering must have had undergraduate work in physical education or must have served within civilian life or within the Army or Navy as specialists in "corrective physical education," in "reconditioning," in "rehabilitation," in "physical therapy" or in any allied and recognized field.

The candidates will be held responsible for eight points in Foundations of Education and will have a major of eighteen points within the Physical Education Department: 12 of these points will be prescribed in the specialized area of corrective physical education and rehabilitation. There will be allowance for at least eight points in electives.

Registered physical therapists may enroll for any one of our individual courses except anatomy and physiology. These individual courses may serve as refresher courses and can carry academic credit if the individual can meet the entrance requirements to our program.

D. T. Watson School of Physical Therapy, Leetsdale, Pennsylvania

A six weeks course designated as "Recent Developments in Physical Therapy." The course would include under infantile paralysis the use of intocostrin and physical therapy, use of the new "Respir-aid Rocking Bed" for patients with respiratory paralysis and comparison of various methods of treating poliomyelitis.

The section on cerebral palsy will emphasize combined methods to meet the various needs.

Additional uses of cold as hypothermy or cryotherapy in injuries and peripheral vascular disease will be explained and demonstrated.

The use of all forms of physical therapy in psychiatric practice and limitations of hydrotherapy would be covered. Appreciation of body mechanics would be taught for individual and group work in dealing with patients who are mentally or nervously disturbed.

An attempt will be made to cover basic material and then adapt part of the time to the needs of each student in view of his own work and problems.

Those who are interested in treatment of acute cases of poliomyelitis will have an opportunity to follow these patients from the time of admission at Municipal Hospital and will be taught the use of the iron lung and new "Respir-aid Rocking Bed."

Dates: July 26-September 4. Tuition: $60. Registration will be limited to 10. Graduate students who are members of the Registry or the American Physical Therapy Association may apply. The class will be chosen from applications received before June 1. Prospective students may write to the D. T. Watson School, Leetsdale, Pennsylvania, for application.

Duke University, Durham, North Carolina

I. A six months' course in the "Psychosomatic Aspects of Physical Therapy" will be given on January 4, 1949.

The course is planned to meet the needs of registered graduate physical therapists who wish to receive further instruction in the treatment of neuropsychiatric patients as well as gain an understanding of the mental attitudes of the acute and chronically ill. In line with the general present day tendency to develop psychosomatic medicine, it emphasizes the neuropsychiatric aspects of physical therapy. The curriculum includes attendance of "staff conference" at which time a case on the psychiatric ward is presented and discussed; special lectures by psychiatrists on "personality," "adjustments," "tension," "anxiety," "patient management" and "advanced neurophysiology." The most significant part of the course is the practical work with certain orthopedic patients who need physical therapy. In addition to administering the physical therapy treatments, the student works on an apprentice basis with the psychiatrist, developing an understanding of the role that anxiety or other emotions play in the patients. Under guidance, the physical therapist develops a knowledge of how to reinforce the effects of the physical procedures with a proper appreciation of the emotional factors in

the situation. The work is intensive and the personal contacts between the students and psychiatric staff is close. In addition to this emphasis, opportunity is available for refresher work in hydrotherapy and other subjects with the students in the undergraduate course in physical therapy.

Students who are desirous of advanced credit may simultaneously carry regular credit courses in the University, providing they meet the requirements of the University for graduate study.

The graduate course in physical therapy is open to both men and women. Tuition fee is $150, and a certificate is granted on completion of the six months' course.

II. Graduate courses leading to a M.A. or Ph.D. degree are available in the Department of Physiology. Problems relating to physical therapy may be chosen for the thesis. Applicants must meet University requirements.

A limited number of teaching fellowships are available for the above courses.

III. For qualified physical therapy graduates interested in further study in the treatment of arthritis, a course of study will be arranged to include lectures in: (1) Diagnosis. (2) Evaluation of clinical findings. (3) X-ray interpretations. (4) Ward care. (5) Physical therapy technic, including special exercises and correction of deformity. (6) Braces and home therapy.

An opportunity to carry out physical therapy technics will be provided in the Physical Therapy Department of Duke Hospital.

A graduate physical therapist should be capable of completing the course within six weeks. The tuition is $50.

For further information or application blank, write to the Division of Physical Therapy, Duke University School of Medicine, Durham, North Carolina.

Institute for the Crippled and Disabled, New York, N. Y.

A participation course in orthopedic rehabilitation will be offered to graduate physical and occupational therapists commencing April 1st, October 1st, and January 1st, and of three months duration.

The course includes observation and work with all types of disabilities of all age groups in classes scheduled from 9 to 5, Monday through Friday.

No tuition is required, and a statement of attendance will be presented by the Institute on the satisfactory completion of the course.

Inquiries should be directed to the Medical Services, Institute for the Crippled and Disabled, 400 First Avenue, New York 10, New York.

New York University, New York, N. Y.

The School of Education of New York University offers undergraduate and advanced programs of study for physical therapists who are graduates of courses approved by the Council on Medical Education and Hospitals of the American Medical Association. Since registration in the physical therapy curriculum is at present limited, members of the American Physical Therapy Association and of the American Registry of Physical Therapy Technicians are given preference. Candidates who have met the university and departmental requirements for acceptance may matriculate for the B.S., M.A., Ph.D. or Ed.D. degree or may enter as special students.

Letters of application for admission to the physical therapy curriculum should be addressed to The Admissions Office, School of Education, New York University, Washington Square, New York 3, N.Y., and should be mailed at least three months preceding the term for which entrance is desired.

Northwestern University Medical School, Chicago, Illinois

Northwestern University Medical School offers an opportunity for properly qualified students to work toward a Master of Science degree in physical therapy. Applications from students with the following qualifications will be given consideration:

Those (a) who hold a Bachelor of Science degree or its equivalent from an institution of accepted standing, (b) who offer the following credits: 8 semester hours of college physics, 11 semester hours of general inorganic chemistry and quantitative analysis, (c) who hold a certificate in physical therapy from Northwestern University Medical School, or its equivalent, and (d) who are able to meet the general requirements for admission to the Graduate School.

Courses of Study

Physiological Chemistry C11, C12

C11—Fundamental principles of problem, lipid, and carbohydrate chemistry. Required credit—3 quarter hours. Second quarter.

C12—Study of foodstuffs, enzymatic digestion, absorption and the intermediary metabolism of protein, carbohydrate and lipid. Elective if Physiology D12 is taken. Credit—8 quarter hours. Third quarter.

Physiology C11, D12, D13

Physiology of the blood, circulation, respiration, digestion, metabolism and central nervous

system. C11 and D13 required D12 elective when Physiological Chemistry C12 is taken. Credit—12-18 quarter hours. C11—Third quarter, D12—First quarter, D13—Second quarter.

Anatomy D14

The gross microscopical structures of the nervous system and sense organs. Prerequirement for Physiology D13. Credit—11 quarter hours. First quarter.

Research in Physical Therapy: E31

Credit to be arranged, and thesis is required.

Course for Instructors of Physical Therapy

A course for instructors of physical therapists has been arranged at Northwestern University Medical School. This course is designed to prepare experienced physical therapists who are interested in the teaching field for instructors in approved schools of physical therapy.

Length of Course: 12 months

Tuition: $250

Prerequisites: (a) Graduation from a course in physical therapy approved by the Council on Medical Education and Hospitals of the American Medical Association plus not less than two years experience in general physical therapy; or (b) Organized courses in physical therapy taken previous to approval of physical therapy courses by the American Medical Association plus five years experience in general physical therapy.

Class limited (two students)

The course consists of: (1) Review of anatomy in dissection laboratory to enable student to be of assistance in teaching anatomy if necessary, particularly applied anatomy.

(2) Neuroanatomy.

(3) Physiology—Review of physiology including laboratory.

(4) Electrotherapy — Review of fundamental principles and new concepts and laboratory experiments.

(5) Review of Accepted Theories and Technics of (a) Massage, (b) Therapeutic Exercise, and (c) Hydrotherapy.

(6) Organization and Administration of Physical Therapy Courses.

(7) General Education Courses.

(8) Methods of Teaching Physical Therapy—(a) Theory (b) Technic.

(9) Preparation of Outlines of Courses Including Sources of Content.

(10) Practice Teaching—Classroom and Clinics.

The content of this course is more or less flexible and can be arranged to suit the applicants' individual needs, depending upon their qualifications.

For further information write: Dean, Northwestern University Medical School, 303 East Chicago Avenue, Chicago 11, Illinois.

Stanford University, California

The Division of Physical Therapy at Stanford University offers programs of study in physical therapy on the undergraduate and graduate level. Students may be candidates for the A.B. and A.M. degrees. A Ph.D. minor also may be taken in physical therapy with the major field in a related area such as physiology, anatomy, physics.

A student who is a graduate of an approved course in physical therapy but who does not have a degree may become a candidate for the A.B. degree in this field providing he or she meets the requirements for admission to the University on an undergraduate level. The program for such a student is developed through conference with the director on the basis of former training and experience. A "C" average must be maintained during each quarter of study.

A graduate who has completed an approved course in physical therapy or who is a member of the American Physical Therapy Association and/or the American Registry of Physical Therapy Technicians may become a candidate for the A.M. degree in physical therapy. The program can be completed in three quarters of residence providing the undergraduate program was comparable to that at Stanford University. Each student's program is developed through conference with the director and is based upon former training and experience. A "B" average must be maintained during each quarter of study and a thesis is required.

A limited number of teaching fellows can be accommodated. These students should be candidates for an advanced degree and should be interested primarily in entering the teaching field.

Special programs of one or more quarters' duration may be arranged for qualified physical therapists who are interested in further work in basic science and other related fields, or special courses in physical therapy such as "Physical Therapy in the Treatment of Infantile Paralysis," "Physical Therapy in Cerebral Palsy," "Study of a Special Problem in Physical Therapy," etc. The prospective student should write to the director, or confer with her if possible, concerning the field of special interest and the time at which such courses can be arranged.

Students are admitted at the beginning of each quarter. The classes are open to both men and women.

Tuition and fees are at the rate of $166.65 per

quarter. The average cost of living accommodations is $75 per month.

Workshop in Physical Therapy, Three Weeks, August 2-20, 1948

These courses are designed for graduate physical therapists who are experienced and are interested in teaching and clinical supervision. Emphasis will be placed on an exchange of ideas in regard to basic principles and technics of manual muscle testing and massage. Laboratory periods with demonstration and practice are to be a part of each course.

The staff will include the regular members and visiting instructors who are especially interested and experienced in these aspects of physical therapy.

The courses are open to qualified physical therapists whose credentials are acceptable to the Division of Physical Therapy. Students on the graduate level may register for 6 units of credit.

220 Manual Muscle Testing—A brief review of anatomy and kinesiology will precede a presentation and discussion of principles and the practice of technics.
4 units MTWTF 9:00-12:00 and other hours by arrangement

222 Survey of Massage Technics—Various technics of massage and their application to disease and injury will be presented to the group for analysis and practice.
2 units MTWTF 1:30-4:00

In addition to regular members of the Stanford Faculty, the staff for the Workshop will include Miss Gertrude Beard, Associate in Physical Medicine and Technical Director, Department of Physical Medicine, Northwestern University Medical School, and Miss Dorothy Fredrickson, formerly Instructor in the Physical Therapy Course at Harvard Medical School.

All inquiries should be sent to the Director, Division of Physical Therapy, Stanford University, California.

State University of Iowa, Iowa City, Iowa

In addition to the regular physical therapy course given at the State University of Iowa, the following work toward a Master's Degree in physical therapy is offered.

Students who have the proper qualifications and interest can register in the Graduate College at the close of the nine months didactic course. By extending their practical training over a longer period they will be able to complete such additional work as may be necessary to meet the requirements for a master's degree.

Fee. The fee for the course is $65 a semester ($115 nonresident).

University of California Medical School, San Francisco, California

Specialized Course:

The University of California offers a four-year course in physical therapy leading to a Bachelor of Science degree. The first three years are spent in the College of Letters and Science, during which time the students are required to take courses which will at the end of that time give them full senior standing. They must also take courses in chemistry, physics, anatomy, physiology, and abnormal psychology. The senior year is spent in the Medical School where the student takes the prescribed physical therapy curriculum. The summer sessions following the senior year are spent entirely in clinical practice in hospitals affiliated with the University of California.

Graduate Work:

It is not possible to obtain advanced degrees in physical therapy, though a Master of Science degree may be obtained in basic sciences, such as anatomy, physiology or physics. The work will be related to physical medicine. This program is offered to students who have the necessary prerequisites and who have completed an accredited course in physical therapy.

Short Courses:

At this time the University of California Medical School is unable to offer any short "refresher" courses in physical therapy.

The University of Colorado Medical Center, Denver, Colorado

Treatment of Poliomyelitis:

Length of Course: Three weeks.

The course in the treatment of poliomyelitis covers the medical, physical, social and psychological aspects of the disease. The physical therapists emphasis is placed on the physical therapeutic procedures, including hot packs, passive motion, muscle reeducation, muscle testing and gait training.

Starting Dates: March and October.

Graduates of schools of physical therapy approved by the Council on Medical Education and Hospitals of the American Medical Association, and who are members of the American Physical Therapy Association and/or the American Registry of Physical Therapy Technicians are qualified for this program. The director of the poliomyelitis teaching program is Winona G. Campbell, M.D.

For information write: Miss Dorothy Billenstien, R. P. T., Physical Medicine Department, University of Colorado Medical Center, 4200 E. 9th Ave., Denver 3, Colorado.

University of Minnesota Medical School, Minneapolis, Minnesota

The University of Minnesota offers a four-year course in physical therapy leading to a Bachelor of Science degree. The freshman and sophomore years are spent in the College of Science, Literature, and the Arts, during which time students are required to take courses in English composition, physics, zoology, chemistry, psychology, anatomy, and bacteriology. Courses in humanities, public health, and child welfare are strongly recommended. The junior and senior years are spent in the Medical School where the student takes advanced science courses, as well as his physical therapy work. The last three months of the senior year are spent entirely in clinical practice in the hospitals affiliated with the University of Minnesota.

Each student majoring in physical therapy is required to complete a minor, preferably in a subject related to physical medicine.

Students wishing to take their freshman and sophomore years at another school must have the above-named English and science courses in order to enter as juniors. New classes begin only in September, and each class is limited to twelve students. Applications must be made before July 1 of the year in which the student wishes to enter as a junior. Tuition is $100 a year.

It is required that a C-plus average be maintained during the time the student is in the medical school.

For qualified physical therapists with a Bachelor's degree, graduate education is offered leading to a Master of Science degree in physical medicine or one of the related basic sciences, such as anatomy or physiology. The field of the major work and thesis may be either in physical medicine or in the basic sciences with the minor in physical medicine. It also is possible to register for suitable courses in education under this plan. Twelve months residence usually is necessary to complete these requirements.

For further information, write the Division of Physical Therapy, Medical School, W-300, University Hospitals, University of Minnesota, Minneapolis 14, Minnesota.

University of Southern California, Los Angeles, California

I. Qualifications for admission: Bachelor's degree with physical education or science background and graduation from an approved school of physical therapy.

Opportunities for specialization: Arrangements can be made with other departments of the University for the properly qualified student. Anatomy, physiology, education, physical education, etc.

Tuition: $14 per unit (min. 28 units)—$392
Length of time: Minimum—1 year
Starting dates: September (preferably) and February
University Credit: Full University credit for all courses

II. Qualifications for admission: Bachelor's degree in Science or Physical Education with a minimum of 18 upper division units in the major field. (As many as 6 units of a shortage may be met by electives allowed in the program for the Master's degree, and graduation from an approved school of physical therapy.)

Major: 10 units to be chosen from the following:

P.T. 201—Advanced Dissection Anatomy for Therapists	(2)
P.T. 203—Manual and Electrical Muscle Testing	(2)
P.T. 210—Therapeutics Program for C.P.	(2)
P.T. 259—Practicum in P.T.	(2)
P.T. 260 ab—Projects in P.T.	(2,2)
P.E. 276—Advanced Corrective P.E.	(2)
P.E. 277—Clinic in Physical Therapy	(3)
Addition units: 4 units of either "200" or "100" courses	(4)
Thesis: P.T. 261ab—Thesis	(2,2)
Electives: 10 units	

Total of 18 units including thesis must be "200" courses.

Medical School courses in the Anatomy and Physiology Departments are available to qualified students.

University of Wisconsin Medical School, Madison, Wisconsin

Master of Science Degree in Physical Therapy.

Prerequisites: Open to physical therapists who hold a certificate in physical therapy from one of the schools accredited by the American Medical Association and who have worked for three years from date of issue of certificate under medical supervision as a physical therapist.

Candidates must satisfy the admission requirements for the Graduate School which is based primarily upon the undergraduate record. There must be 70 semester hours of academic work outside the major and a grade-point average of 1.75 (upon basis of 3.00) to be admitted to full standing. Undergraduate chemistry, physics, zoology, physiology and anatomy are prerequisites.

Course Content: Courses to be taken toward this degree may vary with the individual student, depending on credits already obtained, but usually include the following:

Advanced anatomy or physiology	8 credits
Advanced physical therapy	6 credits
Thesis	4 credits

Length of Course: Usually one year.

Fees: $60 each semester ($100 additional fee for nonresident).

Master of Science Degree in Physical Therapy and Education.

Prerequisites: Open to physical therapists who hold a certificate in physical therapy from one of the schools accredited by the American Medical Association and who have worked for three years from date of issue of certificate under medical supervision as a physical therapist.

Candidates must satisfy admission requirements for the Graduate School (as given above) and in addition, the graduate requirements of the School of Education, i.e. an acceptable major of 24 credit hours in education as an undergraduate or have fulfilled requirements equivalent to those set-up for the University's Teacher's Certificate.

Course Content: Course will include a minimum of 24 credits of graduate work; 12 credits in education courses and 12 credits in physical therapy, the satisfactory completion of a thesis or seminar report dealing with an educational problem in physical therapy, and a final comprehensive examination as prescribed by the two departments concerned.

This course is designed for teachers and there will be an opportunity for teachers to do practice teaching in the technics of physical therapy.

Length of Course: Usually one year.

Fees: $60 a semester ($100 additional fee for nonresidents).

It is possible to arrange for part of the work to be taken during summer sessions, although it is usually more desirable for students to attend the regular session. For information write to: Harry D. Bouman, Medical Director, Section of Physical Medicine, University of Wisconsin Medical School, Madison 6, Wisconsin.

Children's Hospital, Boston, Massachusetts

Physical Therapy Treatment of Infantile Paralysis and Orthopedic Conditions.

Length of Course: Six months.

Starting Dates: April 1, 1948, and September 15, 1948.

Prerequisites: Women graduates of approved schools of physical therapy, and members of the American Physical Therapy Association, or senior members of the American Registry of Physical Therapy Technicians. Preference will be given to those whose recent clinical experience has been in military service.

Tuition: $150.

Certificates will be granted upon completion. (No academic credit will be given.)

Course includes: (a) Special clinical instruction by members of the Orthopedic Staff. (b) The treatment of infantile paralysis, and of orthopedic conditions in children and adolescents. (c) Classes in muscle reeducation, muscle testing, and therapeutic exercise.

Students will serve as clinical assistants, and will be expected to carry a daily treatment program as part of their training.

Facilities available: (a) Massachusetts Infantile Paralysis Clinics of the Children's Hospital. (b) Orthopedic wards and daily out-patient clinics: early convalescent, chronic and postoperative infantile paralysis cases; other neuromuscular lesions, deformities and conditions under orthopedic treatment; observation of surgery, plaster work, and apparatus. (c) Special clinic for faulty posture and scoliosis cases. (d) Pool and tub for underwater exercises. (e) Functional Training Room for gait training, crutch walking, and functional activities for the handicapped. (f) Infantile paralysis treatment centers in nearby cities with staff physical therapists. (g) Isolation Ward for the acute infantile paralysis cases when available. (h) Physical therapy library, gait movies, and slides.

Students will be under the direction of Dr. William T. Green, Orthopedic Surgeon-in-Chief of the Children's Hospital, and Miss Janet B. Merrill, Technical Director of Physical Therapy, Children's Hospital.

Instructors will include: Dr. David Grice, Assistant Orthopedic Surgeon, Dr. Thomas Gucker, 3rd, Attending Surgeon, and other members of the Orthopedic Staff of the Children's Hospital and the Harvard Medical School.

Miss M. Lella Dwyer, Massachusetts Infantile Paralysis Clinic, and Miss Helen Staats, Massachusetts Infantile Paralysis Clinic, and Miss Shirley Cogland, Assistant Technical Director, Children's Hospital, and other members of the physical therapy staff of Children's Hospital.

Living Arrangements: Assistance will be given in finding rooms in the vicinity of the hospital.

Application should be made to: Janet B. Merrill, Technical Director of Physical Therapy, Children's Hospital, 300 Longwood Avenue, Boston 15, Mass.

Children's Rehabilitation Institute, Cockeysville, Maryland

Technics of Treatment of the Cerebral Palsied.

Length of Course: Three months.

Starting Dates for 1948-49:

January 5, April 5, July 5, October 4, January 3, 1949.

Requirements: Graduates of approved schools of physical and occupational therapy and members of the American Physical Therapy Association, or American Registry of Physical Therapy Technicians, or American Occupational Therapy Association.

Tuition: $150 without maintenance. Assistance in locating living quarters given upon request.

Training Course includes: 75 hours of lectures on methods of treatment for the five classifications of cerebral palsy, etiology, neurology, kinesiology, bracing and apparatus, drug therapy, theory of dominance, surgical procedures, fundamentals of occupational therapy, physical therapy, speech therapy, and teaching technics for the cerebral palsied.

These lectures are presented by Dr. Winthrop M. Phelps and the heads of the therapy, nursing, and educational departments of the Children's Rehabilitation Institute.

The practical work includes 300 hours of observation and treatment of the cerebral palsied.

For further information write: Dorothy D. Cregger, Registrar, Children's Rehabilitation Institute, Cockeysville, Maryland.

Georgia Warm Springs Foundation, Warm Springs, Georgia

Three Months Graduate Course—*Physical Therapy in the Care of Poliomyelitis.*

This course is open to graduates of courses in physical therapy approved by the Council on Medical Education and Hospitals of the American Medical Association or members of the American Physical Therapy Association and/or American Registry of Physical Therapy Technicians.

Tuition: None.

Maintenance: Maintenance scholarships of $100 per month are available from the National Foundation for Infantile Paralysis. Those who accept scholarships must be willing to stay at Georgia Warm Springs for an additional three months if requested to do so. The scholarships will cover the full period of attendance.

Partial scholarships are available for qualified veterans to supplement the amount allowed under the G.I. Bill of Rights.

Entrance Dates: First Monday of January, April and October.

Purpose of Course: To train qualified physical therapists in the care of all phases of poliomyelitis: (1) Accurate muscle strength evaluation. (2) Body mechanics. (3) Muscle reeducation, including underwater exercises. (4) Correct use of assistive and supportive apparatus. (5) Walking reeducation.

Directed by Robert M. Bennett, M.D., Director of Physical Medicine, Georgia Warm Springs.

For information write: Credential Secretary, Division of Professional Education, National Foundation for Infantile Paralysis, 120 Broadway, New York 5, N.Y.

Syracuse University, Syracuse, New York

A Division of Special Education has been developed as of July 1, 1946, at Syracuse University within the School of Education for the purpose of training teachers to work with children presenting visual impairments, auditory impairments, orthopedic handicaps and mental retardation. One program provides for a full five year program leading simultaneously to the Bachelor's and Master's degrees in any of the four above-mentioned fields. A second program, primarily for the graduate student, permits the individual to take a Master of Art or Science Degree in special education. A third program has been designed to permit individuals who have a three or four year diploma from a normal school or teachers college to complete the minimum requirements for certification as a special class teacher in New York State.

The program is designed to coordinate on a regional basis the clinical and medical facilities of both public and private institutions with college and public school work. In connection with the program the School of Education has added a large number of new courses on the psychology of exceptional children; psychological technics in the examination of physically handicapped children; mental, social and vocational guidance for physically handicapped children, and advanced psychology of the physically and mentally handicapped. Content courses in the several fields of special education have been organized and others will be added in the near future.

Several divisions of the University and local organizations are cooperating in the new program—namely, the College of Medicine, the College of Home Economics, the School of Nursing, the School of Fine Arts, and the College of Liberal Arts of Syracuse University. In the neighboring area the Percy Hughes School for Exceptional Children, Syracuse State Training School, and the special classes of the Syracuse Public Schools have affiliated with the University to expand the program.

Dr. William M. Cruickshank, Director of Special Education, School of Education, has stated that

he would be pleased to work out individual programs for physical therapists who desire to go on for graduate training in a field closely allied to their profession.

Alfred I. Du Pont Institute, Wilmington, Delaware

The Alfred I. du Pont Institute is offering a one year (or part thereof) fellowship at a stipend of $1200 a year or $100 a month to physical therapists who are graduates of approved schools of physical therapy. No room or board can be provided. This fellowship is available for those interested in acquiring further training in crippled children"s work.

The duties will include clinic treatment, conferences and rounds attendance. Special instruction by the resident orthopedic staff and by the chief of the physical therapy department will be given.

For further information write Dr. A. R. Shands, Jr., Medical Director, Alfred I. du Pont Institute, Rockland Road, Wilmington 99, Delaware.

THE PHYSICAL THERAPY REVIEW—Change in Price

Effective January 1, 1949, the price of a year's subscription to THE PHYSICAL THERAPY REVIEW will be raised to $6.00 in the United States; $6.75 outside the United States. All subscriptions for the period beginning January 1, 1949, whether new or renewal, must be paid for at the new rate. Single copies are now 75¢. Send your subscription to THE PHYSICAL THERAPY REVIEW, 4741 North Paulina Street, Chicago 40, Ill. Changes in address also should be sent to this office.

Reprints Available

One free copy of each scientific reprint (except the History of the American Physiotherapy Association and the Anterior Poliomyelitis Issue of the REVIEW will be provided upon request to all members, students in the approved schools and libraries. A small charge is made as indicated to nonmembers. The information brochures are available to all without charge. To obtain reprints write: American Physical Therapy Association, 1790 Broadway, New York 19, N. Y.

PHYSICAL THERAPY, A SERVICE AND A CAREER

An illustrated brochure, describing the opportunities for a career in physical therapy, available scholarships and educational requirements for entering a school of physical therapy. (Made available through National Foundation for Infantile Paralysis funds.)

OUR ASSOCIATION

An informational booklet on the activities, scope and services of the American Physical Therapy Association.

PHYSICAL THERAPY

A question and answer article covering the usual queries received on physical therapy.

PHYSICAL THERAPY—*Suggestions for Prospective Students.*

Outlines the preprofessional course of study for college students preparing for physical therapy.

PERSONNEL POLICIES FOR QUALIFIED PHYSICAL THERAPISTS

Suggestions as to salary, hours, vacations, etc., by the American Physical Therapy Association.

ETHICS FOR THE PHYSICAL THERAPIST: *From the Point of View of the Medical Practitioner.*

HELEN HARDENBERGH, M.D.

APPROVED SCHOOLS OF PHYSICAL THERAPY

A list of schools approved by the Council on Medical Education and Hospitals of the American Medical Association.

THE PRESCRIPTION OF PHYSICAL THERAPY

JESSIE WRIGHT, M.D.

CARE OF PATIENTS WITH INFANTILE PARALYSIS: *Correlation in the Nursing and Physical Therapy Services.*

CARMELITA CALDERWOOD HEARST. (5c)

METHODS OF TREATMENT FOR THE CEREBRAL PALSIED

ROBERTINE ST. JAMES. (10c)

PHYSICAL THERAPY AND CHEST SURGERY.

FLORENCE S. LINDUFF. (10c)

POSTNATAL TREATMENT WITH MASSAGE AND EXERCISES.

NINA KELLGREN. (5c)

PHYSICAL THERAPY IN TREATING PERIPHERAL VASCULAR DISEASES: *With Particular Emphasis on Trench Foot.*

GEORGIANA WINDHAM. (5c)

PHYSICAL THERAPY IN THE TREATMENT OF NEUROSURGICAL CONDITIONS: *With Special Reference to New Electrodiagnostic Measures.*

EDNA L. DILLON. (10c)

PHYSICAL THERAPY MANAGEMENT OF LOWER EXTREMITY AMPUTEES.

PAIGE WEAVER. (10c)

WALKING TRAINING OF THE AMPUTEE: *Some Biochemical Considerations.*

SIGNE BRUNNSTROM. (10c)

PRESENT TRENDS IN PHYSICAL MEDICINE.

GEORGE MORRIS PIERSOL, M.D. (5c)

THE PHYSIOTHERAPY REVIEW—*Special Anterior Poliomyelitis Issue.*

July-August 1947 (75c)

The magazine contains 11 articles by leading physicians and physical therapists on research and treatment of polio. There are 16 abstracts of articles on polio from current medical journals.

A HISTORY OF THE AMERICAN PHYSIOTHERAPY ASSOCIATION.

IDA M. HAZENHYER. (50c)

An account of the Association's activities and growth from 1921-1946.

Schools Approved for Training Physical Therapists

By Council on Medical Education and Hospitals of the American Medical Association

Name and Location of School	Medical Director	Technical Director	Entrance Equirements*	Length in Months	Classes Start	Tuition	Certificate, Degree Diploma
Children's Hospital, Los Angeles	Samuel S. Mathews.	Sarah S. Rogers.....	a-b-d	14	Sept	$300	Cert. or Degree[5]
College of Medical Evangelists, Los Angeles[1].....	F. B. Moor.....	R. Wm. Berdan.....	a-b-c-d	12	Sept	$225	Cert or Degree
University of Southern California, Los Angeles.....	O. L. Huddleston...	Charlotte W. Anderson.....	a-b-d[3]	12	Sept	$496	Cert. or Degree
University of California Medical School, San Francisco[1].....	Frances Baker.....	Margery Wagner.....	d-e	12	Sept	$220[4]	Cert. or Degree
Stanford University, Stanford University, Calif[1].....	Wm. Northway....	Lucille Daniels.....	a-b-d[2]	12	Jan June	$523.30	Cert. or Degree
University of Colorado Medical Center, Denver.....	Harold Dinken.....	Mary Lawrence.....	a-b-d	12	Jan	$300	Cert. or Degree
Northwestern University Medical School, Chicago.....	John S. Coulter.....	Gertrude Beard.....	a-b-d	12	Oct	$300	Cert.
State University of Iowa Medical School, Iowa City.....	W. D. Paul.....	Olive C. Farr.....	e	12	Sept	$299	Cert.
University of Kansas School of Medicine, Kansas City, Kans.	Donald L. Rose....	Lilyan G. Warner & Ruth Monteith.....	a-b-c[3]	12	FebSept	$80[4]	Cert. or Degree
Bouve-Boston School of Physical Education, Boston.....	Howard Moore....	Constance K. Greene	H.S.	36	Sept	$500 yr.	Degree
Simmons College, Boston.....	{Wm. T. Green... Arthur L. Watkins}	Janet B. Merrill.....	a-b-d	16-36	Sept	$550	Cert. or Degree
Boston Univ. College of Phys. Educ. for Women: Sargent College, Cambridge 38, Mass.....	Kenneth Christophe	Adelaide McGarrett..	H.S.	36	Sept	$435 yr.	Cert. or Degree
Univ. of Minnesota, Minneapolis[1]	Miland E. Knapp...	Ruby M. Green.....	H.S.	36	Oct	$530[4]	Degree
Mayo Clinic, Rochester, Minn...	Frank H. Krusen...	Ruth Ryan.....	a-b-c	12	Jan July	None	Cert.
Barnes Hospital, St. Louis.....	F. H. Ewerhardt....	Beatrice F. Schulz.....	a-b-d	12	Sept	$200	Cert.
St. Louis University School of Nursing, St. Louis[1].....	Alexander J. Kotkis	Sr. Mary Imelda.....	H.S.	36	Jan Sept	$300	Degree
Albany Hospital, Albany, N. Y...	John W. Ghormley.	Catherine Graham....	a-b-c	12	Sept	$200	Cert.
Columbia University, New York City.....	Wm. B. Snow.....	Josephine L. Rathbone	a-b-c	1 or 2 yrs	Sept	$450 yr.	Cert. or Degree
New York University School of Education, New York City[1]....	George G. Deaver..	Elizabeth C. Addoms	a-b-d	12	Sept	$525	Cert. or Degree
Duke University School of Medicine, Durham, N. C.[1].....	Lenox Baker.....	Helen Kaiser.....	a-b-d	15	Oct	$300	Cert.
D. T. Watson School of Physical Therapy, Leetsdale, Pa.[1].....	Jessie Wright.....	Kathryn Kelley.....	a-b-d	12	Oct	$300	Diploma
Grad. Hosp., University of Pennsylvania, Philadelphia, Pa..[1]..	George M. Piersol.	Dorothy Baethke.....	a-b-e	12	Sept	$300	Cert.
University of Texas School of Medicine, Galveston.....	G. W. N. Eggers...	Ruby Decker.....	a-b-d	12	Jan	$143[4]	Cert.
Baruch Center of Physical Medicine of the Medical College of Virginia, Richmond, Va.[1].....	Frances Hellebrandt.	Edith M. Vail.....	a-b-c[3]	12	Sept	$262[4]	Cert. or Degree
University of Wisconsin Medical School, Madison[1].....	Harry D. Bouman..	Margaret Kohli.....	a-b-c[3]	12	Sept	$120[4]	Cert. or Degree

*Courses are so arranged that any of the entrance requirements will qualify students for training. a = Graduation from accredited school of nursing; b = Graduation from accredited school of physical education; c = Two years of college with science courses; d = Three years of college with science courses; e = Four years of college; H.S. = High school graduation.

[1]Male students are admitted.

[2]High school graduates accepted for a four-year course leading to A.B. degree.

[3]High school graduates accepted for four-year college course.

[4]Nonresidents charged additional fee.

[5]Certificate granted by Children's Hospital Society; degree granted by University of California at Los Angeles.

Editorials and News

The Physical Therapy Review

For some time we have been making minor changes in the appearance of the REVIEW. But with this issue we have gone all out for the "new look." Since we are now officially the American Physical Therapy Association, our magazine becomes THE PHYSICAL THERAPY REVIEW. This change in name required a new cover design. Without changing the style too much, we planned it so the issue date and volume number could be more easily seen.

It was agreed that this would be an expedient time to make further changes which had been under consideration. You will note new type throughout, a change in the title-page, new headings for the various departments and other slight changes. Our publishers were very helpful in giving us advice about matters beyond our experience and knowledge.

While we realize that appearance is not the most important thing about a scientific publication, we also recognize the value of encouraging reading through eye-appeal. So it is our aim to combine a high standard of content with an attractive lay-out and thus try to stimulate added interest in our publication.

A Message from Our President

It has been said that psychologically we sit on a four-legged chair. One leg of the chair is our vocation, another leg is our social and recreational leg; the third is our avocation, and the fourth is our physical self. If our chair has four solid legs we are destined to sit comfortably and securely. If one leg is short or is missing, or if all four legs are of different lengths, we as physical therapists surely can appreciate how precariously balanced a person would be. It is up to each of us to realize how she must work to keep the psychological chair legs balanced.

An excellent aid to this program for physical therapists themselves is our National Conference which can help to keep the four legs in balance. In looking over the program the vocational leg is obvious. To anyone who has attended a conference the social and recreational leg is equally obvious. It is surprising how many physical therapists you may meet at conference who have the opportunity to pursue their avocation while there, or while traveling to and from. Certainly the satisfaction of renewing old friendships and making new ones, while visiting, or taking the opportunity to discuss technics, or in talking over the inevitable problems, as well as listening to planned lectures will help square up the third and fourth legs with the first and second.

The advances in all branches of medicine and surgery are truly remarkable and as they progress technics of treatment change, and we must constantly be on the alert. We must seek knowledge for we must go along with this rising tide of medicar research. Miss Dorothy Dean, as program chairman of the convention with the help of her committee and the Illinois chapter, has an interesting and instructive program planned.

We should not lose sight of the fact that we collectively are the American Physical Therapy Association. Noah Webster says an "association is a body of persons with a common object." We must meet as an association having form, substance and weight, to promote our common object, the science of physical therapy, SO . . .

Come for the mental stimulation.
Come to learn and for an exchange of ideas.
Come to Chicago May 23rd.
Come to Your Conference!

—*Susan G. Roen*

Postconference Course

A postconference course is being planned at the University of Wisconsin Medical School for two weeks following the annual meeting of the American Physical Therapy Association in Chicago in May 1948. Subjects of the course will be "Neuromuscular Physiology" and "Pathology and Psychosomatic Medicine." Details will be announced later.

Annual Conference of the American Physical Therapy Association

La Salle Hotel, Chicago, Illinois

May 23-28, 1948

Sunday, May 23

3:00 p. m.	Registration
4:30- 5:00 p. m.	Open hearing on By-Laws
7:30 p. m.	Formal opening of 25th Annual Conference—Susan G. Roen, President, American Physical Therapy Association
	Greetings from Illinois Chapter—Dorothy Stults, President
	Greetings from American Congress of Physical Medicine—H. Worley Kendell, M.D., President
	"The Physical Therapist in the Expanding Program of Medical Care"—Hart E. Van Riper, M.D., Medical Director, National Foundation for Infantile Paralysis

Monday, May 24

9:00-12:00 noon	General Session, House of Delegates
12:00- 2:00 p. m.	Luncheon
2:00- 3:30 p. m.	"Management of Patients with Spinal Cord Injuries and Demonstration of Patients"—Louis B. Newman, M.D., Chief, Physical Medicine Rehabilitation, Veterans Adm. Hosp., Hines, Ill.; and Physical Therapy Staff
3:30- 4:00 p. m.	Viewing of Exhibits
4:00- 5.00 p. m.	"Nerve and Tendon Injuries of the Hand"—Sumner L. Koch, M.D., Prof. of Surgery, Northwestern Univ. Medical School
7:30- 9:00 p. m.	Movies
	Meeting National and Chapter Committee Chairmen

Tuesday, May 25

9:00-12:00 noon	"Physiological Basis of Muscle Reeducation"—Harry D. Bouman, M.D., Prof. of Physical Medicine, Univ. of Wisconsin
12:00- 2:00 p. m.	Luncheon
2:00- 3:30 p m.	"Contribution of the Physical Therapist to Nursing Education"—Panel Discussion and Demonstration—Jessie Stevenson and guest speakers to be announced
3:30- 4:00 p. m.	Viewing of exhibits
4:00- 5:00 p. m.	"The Use of Physical Therapy for the Psychiatric Patient"—Speaker to be announced
7:30- 9:30 p. m.	General Session, House of Delegates

Wednesday, May 26

9:00-10:30 a. m.	Papers on Research—to be announced
10:30-11:00 a. m.	Viewing of exhibits
11:00-12:00 noon	"Anterior Poliomyelitis: Early and Late Treatment of Muscles by Electrical Muscle Stimulation"—Stafford L. Osborne, Ph.D., Assoc. Prof. of Physical Med., Northwestern University
12:00- 2:00 p. m.	Luncheon
2:00- 3:30 p. m.	"Treatment of Poliomyelitis: The Functional Viewpoint"—Emil D. W. Hauser, M.D., Asst. Prof. of Bone and Joint Surgery, Northwestern Univ.
3:30- 4:00 p. m.	Viewing of exhibits
4:00- 5:00 p. m.	"Importance of Functional Testing and Functional Retraining in the Care of Convalescent Poliomyelitis Patients"—Robert L. Bennett, M.D., Director of Physical Med., Georgia Warm Springs Foundation
7:30 p. m.	Banquet (Informal)

Thursday, May 27

9:00-12:00 noon	General Session, House of Delegates
12:00- 2:00 p. m.	Luncheon
2:00- 3:30 p. m.	"Physiology of Peripheral Circulation Including Pharmacology"—David I. Abramson, M.D., Clinical Asst. Prof. of Medicine, Univ. of Illinois
	"Peripheral Vascular Disease: Clinical Aspects and Treatment Including Physical Therapy"—Geza de Takats, M.D., Clinical Assoc. Prof. of Surgery, Univ. of Illinois

Friday, May 28

9:00-12:00 noon	School Section
2:00- 5:00 p. m.	School Section
All Day	Selected tours to Physical Therapy Departments in Chicago

Report of Nominating Committee

The following slate has been prepared by the Nominating Committee to meet the number of officers and directors under the new By-laws:

President ..... Lois Ransom
Vice-President ..... Marguerite Irvine
Secretary ..... Mary Haskell
Treasurer ..... Margaret Kohli
Directors:
(2 years) ..... Catherine Worthingham
(2 years) ..... Dorothy Baethke
(4 years) ..... Susan G. Roen
(4 years) ..... Samuel Henshaw

Speaker of House of Delegates: ..... Mary C. Singleton

Respectfully submitted,
HARRIET LEE, Chairman

Biographies

Lois Ransom, President, Washington, D. C.
Member A.P.A. since 1936
Secretary, A.P.A., 1946-48
Served in Army of United States
Now Assistant Chief Physical Medicine and Rehabilitation, Hospital Division, U. S. Public Health Service

Marguerite Irvine, Vice-President, Seattle, Wash.
Charter Member, A.P.A.
Past Chairman of Education, A.P.A.
Director, A.P.A., 1936-42
Member, Physical Therapy Scholarship Committee, 1943-45

Mary Haskell, Secretary, Santa Monica, Calif.
Member A.P.A. since 1929
Chairman, Legislation, A.P.A., 1946-48
Served in Army of United States
Now in national office to compile manual, "Hospital Physical Therapy Departments"

Margaret Kohli, Treasurer, Madison, Wis.
Member A.P.A. since 1939
Member of committee to compile manual, "Hospital Physical Therapy Departments"
Technical Director, Physical Therapy School, University of Wisconsin

Mary Clyde Singleton, Speaker of House of Delegates, Durham, N.C.
Member A.P.A. since 1935
Secretary, House of Delegates, 1945-47
Chairman, House of Delegates, 1947-48
Instructor, School of Physical Therapy, Duke University

Susan G. Roen, Director (4 years), Los Angeles, Calif.
Member A.P.A. since 1929
President, A.P.A., 1946-48
Treasurer, A.P.A., 1934-36
Director of Physical Therapy, Orthopedic Hospital, Los Angeles

Samuel Henshaw, Director (4 years), Philadelphia, Pa.
Member A.P.A. since 1932
President, Pennsylvania Chapter, 1947-48
Director of Physical Therapy, Hospital of the University of Pennsylvania

Dorothy Baethke, Director (2 years), Philadelphia, Pa.
Member A.P.A. since 1928
Director, A.P.A., 1946-48
Education Chairman, A.P.A., 1947-48
Technical Director, Graduate Hospital School of Physical Therapy, University of Pennsylvania

Catherine Worthingham, Director (2 years), New York, N. Y.
Member A.P.A. since 1929
Vice-President, A.P.A., 1934-36
President, A.P.A., 1940-44
Director, A.P.A., 1944-48
Director of Professional Education, National Foundation for Infantile Paralysis

Correction

On page 21 of the January-February 1948 issue is a picture of Major Vogel receiving her cononel's insignia. The two men should have been identified as follows: (on the left) Major-General Norman C. Kirk, retired, and (on the right) General Raymond W. Bliss.

Chapter Activities

Carolina Chapter: When we speak of Carolina news, let's remember this chapter includes both North and South Carolina. The Chapter recently has sent an announcement to allied agencies, hospitals, physicians in North and South Carolina and also had published in the State medical journals a notice stating this Chapter now offers advisory service for the placement of physical therapists in the Carolinas. This is not only an aid for the physical therapist who requests information on physical therapy vacancies in this area, but also is a means of assisting any organization, hospital or physician who wishes to secure physical therapy personnel.

Connecticut Chapter: Through the efforts of the Connecticut Chapter, Mrs. Mabel L. Fitzhugh of San Jose, Calif., presented slides and an excellent lecture on "Posture of Babies" to 250 people in the auditorium of the Newington Home and Hospital for Crippled Children, Newington, Conn.

Judith Nuygan, of Maastrichet, Holland, a member of the Netherlands Association of Physical Therapists, attended our November meeting and the Newington Home. She observed physical therapy treatments and also entertained the children by displaying Dutch costumes and talking about her native land. She also visited Nora Grizzell at the McCook Memorial Hospital, Hartford.

District of Columbia Chapter: Sue Roen, President of the American Physical Therapy Association, was a guest of the Chapter in December 1947. During an informal discussion period Miss Roen gave needed and helpful advice on both specific and general problems. Miss Roen was in the nation's capitol to attend a Workshop of the Women's Congressional Committee.

The District of Columbia Chapter has recently given gifts of money in memory of two former members: To the American Cancer Society, San Francisco Chapter, in memory of Mrs. Frieda Gassin, and to the Children's Hospital Building Fund, Washington, D. C., in memory of Miss Louisa Lippitt. Both Mrs. Gassin and Miss Lippitt were charter members of the Chapter.

The December meeting of the Chapter consisted of a panel discussion and round table on "Posture and Body Mechanics." Leading the discussion were representatives of public health, Veterans Administration, Army hospital, private hospital, children's hospital and physician's office. Although the entire subject material could not possibly be covered in the time allotted, problems of common interest and varying technics of treatment were widely discussed. Posture problems as such must necessarily still be thought of as an "individual patient problem," with a fairly well standardized method of approach for treatment. It was interesting to note, however, the variance among the representative groups as to the "standard" each followed.

Northern California Chapter: The topic of discussion for the March 30th and April 27th meetings of the Northern California Chapter is to be "Gaits and Their Correction." Dr. Lucille Eising is to be the speaker at both meetings.

Ohio Chapter: Dr. Winthrop M. Phelps talked to the Ohio Brace Men's Association in regard to braces for the cerebral palsied child. The physical therapists were given the privilege of hearing this talk.

On October 14th the Southwestern District held a dinner meeting at the Golden Lamb, Lebanon. Twenty-seven physical therapists from Cincinnati, Hamilton and Dayton were present.

November 18th the physical therapists from Dayton and Hamilton went to Children's Hospital in Cincinnati where twenty physical therapists heard Doctor Strance, Chief of Chest Surgery at the Veterans Administration, Dayton, speak of his work in chest surgery at the Veterans Facility. Doctor Strance stressed the importance of physical therapy before and after surgery to prevent scoliosis, elevated shoulder, lateral deviation of the neck, or elevation of the shoulder on one side and the hip on the other.

Texas Chapter: The annual meeting of the Texas Chapter was held in Galveston, March 3, during the same week as the Postgraduate Course in Physical Medicine was given at the University of Texas Medical School. Mildred Elson was special guest at this meeting.

Washington Chapter: Doctor Johnson of the University of Washington was guest speaker at the February meeting of the Washington Chapter. His topic was "Functional Anatomy of the Upper Extremity."

Wisconsin Chapter: The Wisconsin Chapter of the American Physical Therapy Association and the Wisconsin Occupational Therapy Association will hold a joint meeting sponsored by the Department of Physical Medicine at the University of Wisconsin on April 10 and 11, 1948. Physical therapists and occupational therapists from other states are cordially invited to attend. The program includes pathology and physiology of muscle and nerve with demonstration of important cases, hyperventilation pational therapy and cerebral palsy. A dinner is and relaxation exercises, art education and occuplanned for Saturday night at which Doctor West, Professor of Speech. will speak, and a luncheon on Sunday at which Doctor Tenney, Associate Professor of Pediatrics, will be the speaker. The speakers at all meetings will be members of the faculty of the Medical School of the University of Wisconsin and two guest speakers.

School Notes

Boston University College of Physical Education for Women: Sargent College:

In May 1947 twenty-one students graduated from the course in physical therapy at Boston University, and all became members of the American Physical Therapy Association. Today those graduates are employed as follows:

Cerebral palsy care	1
Industrial clinic	1
Physician's offices	2
Poliomyelitis care	2
U. S. Public Health Service	2
Veterans Administration	2
Visiting Nurses Associations	3
General hospitals	4

The remaining four graduates have either married or are planning to be married soon.

New York University (School of Education): In order to better orient themselves to their future profession, the *pre*-physical therapy students of New York University School of Education have

joined to form a Physical Therapy Club. Though the organization is less than three months old, members have begun visiting hospital physical therapy departments, have sponsored the showing of two films relating to physical therapy and have given a student-advisor dinner followed by an informal discussion of topics of interest to future physical therapists. Several club members have accepted positions as junior councilors in a camp for crippled children. Some are actively supporting the work being done for cerebral palsied children in the metropolitan area. Others are becoming acquainted with problems of the disabled by caring for physically handicapped children in order to relieve their parents for a few hours during the week. Future plans of the club include more extensive use of the American Physical Therapy Association's advisory service for prospective professional students.

Personals

Dorothy Spark is in charge of the Polio Physical Therapy Unit at Children's Hospital. With her is Lois Sarah Bradley who is also a graduate of Cleveland Clinic School of Physical Therapy.

Ruby Oscarson, Director of the Stamford Work shop of the Connecticut Society for Crippled Children and Adults, presented a speech on physical therapy and the activities of the Stamford Workshop to the Kiwanis Club of Durien.

Prudence Kuhrt is at Doctor Phelps school in Maryland for a three months' course.

Dorothy Northrup is now with the Stamford Workshop. She formerly was physical therapist for the Hartford Visiting Nurse Association.

Anne Prochazka, of the Illinois Chapter, is one of ten nurses who were selected by Edna Yost for discussion in her book entitled "American Women of Nursing." Miss Yost has presented the lives of these nurses—each in her own way a pioneer crusader for better care of the sick, each epitomizing the struggles of nursing to become a profession.

Marriages

Margaret Beard is now Mrs. George Federoff.

Viola M. Buchmiller is now Mrs. Viola M. Dando.

Eleanor English is now Mrs. John Welch.

Barbara Grant is now Mrs. W. P. Coleman.

Eva Greenwood is now Mrs. Robert Welch

Priscilla Johnston is now Mrs. Nicholas S. Ransohoff.

Isabel Kleiman is now Mrs. Isabel K. Thompson.

Shirley Mildred Parker is now Mrs. Shirley Westmoreland.

Ida Madge Sargalis is now Mrs. Ida Madge Boice.

Meetings

The National Foundation for Infantile Paralysis will sponsor the First International Poliomyelitis Conference to be held at the Waldorf-Astoria Hotel in New York, July 12-17, 1948.

More than sixty foreign governments have been invited to send official delegates to present the problems of poliomyelitis in their countries at a special session. A full program has been planned to include panel discussions and presentation of medical and scientific papers on poliomyelitis, demonstrations of scientific apparatus used in research and treatment of the disease, medical and scientific exhibits, receptions, entertainment and excursions. A detailed program will be prepared for distribution at the time of registration.

The Chartered Society of Physiotherapists is holding its annual meeting in London, September 23-26, 1948. An invitation to the meeting has been received by the American Physical Therapy Association. It will have a true international flavor and it is expected that representatives from associations throughout the world will be present. Any member of the American Physical Therapy Association is privileged to attend.

The American Occupational Therapy Association will hold its 31st annual convention at the Hotel Pennyslvania, New York City, Sept. 7-9, 1948.

Exchanges and Foreign Subscriptions

It may interest our readers to know that 46 magazines are received by THE PHYSICAL THERAPY REVIEW on an exchange basis. Of the 46 magazines, 28 are published in the United States, while the remaining 18 come from the following foreign countries: Argentina, Belgium, Canada, Cuba, England, France, India, Italy, Netherlands Switzerland Union of South Africa and Uruguay.

We also have 149 foreign subscriptions distributed as follows: Australia 44; Canada 25; Greece 15; Denmark 7; Union of South Africa 7; Uruguay 6; Belgium 5; Brazil 4; Switzerland 4; Cuba 3; Palestine 3; Puerto Rico 3; China 2; England 2; France 2; India 2; Soviet Union 2; Sweden 2; and one each from the following—Argentina, Canal Zone, Chile, Iceland, Iraq, Italy, Mexico, Netherlands, New Zealand, Philippines and Scotland.

Women's Bureau Conference

The Women's Bureau of the Department of Labor held a three-day conference, February 17, 18 and 19, on the "American Woman—Her Changing Role—Worker, Homemaker and Citizen." Representatives of 87 civic and women's organizations and 43 labor organizations attended. The American Physical Therapy Association was represented by Lois Ransom, and by Mildred Elson, whose report follows:

President Truman greeted the conference which commemorated the Seneca Falls Convention for women's rights in 1848. The president placed upon the shoulders of women the responsibility to continue the fight for peace and a higher standard of living. He particularly emphasized as did many other speakers throughout the three-day meeting, equal pay for equal work, which has not yet been attained by women.

Miss Frieda Miller, director of the Women's Bureau, stated that there are now 17 million women employed in the United States. This constitutes about 28 per cent of the total labor force. Dean Mildred Thompson of Vassar College pointed out that in the academic world and in the world of research there are few distinguished women of first rate achievement. She deplored any attempt to make the curriculum for women essentially different from that of men.

Mr. Ardway Tead, Chairman, Board of Higher Education of New York City emphasized that women's education like men's should help to clarify the areas of citizen obligation for the conduct locally of public housekeeping, education, health, housing, recreation and worship. He stated that the principle of the future state must be that every man and every woman shall be a whole person. "To work creatively, to love family and friends, to find beauty, to share community obligation, to plan productively, to worship reverently—a person, man or woman, is whole only as all of these deep desires of life can be realized." "To expect less from living as shown by the narrowness and confusion of one's inner life is a kind of surrender and we see this all about us taking different forms in men's and women's pattern of behavior. . . . We have to find the fullness of ourselves."

The entire conference was interesting, stimulating and thought-provoking. The gains of women economically and socially in the past 100 years have been great, but there is still much to be done. Women from all walks of life, all types of employment entered the discussion to tell of their particular problems and how they proposed to meet them. Women work because they must for the most part. It has become an accepted pattern of life today that women have a period of employment between the completion of their education and marriage. The problem of the working mother was discussed; the need for better child care, maternity benefits, etc.

If we are to attain a full life for all, women must work shoulder to shoulder with men and assume their share of civic and social responsibilities. We cannot stay in our own tight social and economic circles and be concerned with just ourselves. The same drives and desires are common to all—greater economic security, cultural and educational opportunities, and so on.

As I listened to the many speakers and comment from the audience, I wished that all of you could have been there. I believe that you would have felt as I did, that we should broaden our horizons in our professional meetings and in our private lives to include participation in civic affairs and to lend our minds and energies to effect a fuller life not for ourselves, although that would be a by-product, but for all. The Women's Bureau is to be congratulated for the work that has been done for women. Its scope is broad and vision great under the leadership of Miss Frieda Miller.

The number of women in paid employment has been increasing steadily in the last decade and will no doubt continue to increase, as there are now approximately 5 million more women than men in the country. As this labor force grows so does responsibility grow. Let us who have had greater opportunities in education than a great many other workers assume our share of responsibilities to make this country of ours a still better country with equal opportunities for all without regard for race, creed or sex. Dean Thompson advised that there be mutual understanding, not antagonism; cooperation and sympathy, instead of crimination and recrimination between nations and sexes. It is good advice. Let us heed it.

Federal Communications Commission

Attention is invited to Section 18.51 of the Federal Communications Commission's Rules and Regulations relating to industrial, scientific and medical service. This section provides that medical diathermy equipment manufactured prior to July 1, 1947, may, for a period of five years from June 30, 1947, be operated or sold without authority from the Commission provided no interference is caused to existing radio services.

In cases where interference occurs and the user eliminates such interference, no further action is taken by this Commission. It is expected that the users of such equipment will cooperate with the Commission and with any complainants in order

to eliminate interference resulting from the operation of medical diathermy equipment.

Rehabilitation Research Program

The Orthopaedic Hospital of Los Angeles has received a grant of $100,000 for a five-year study which may change the whole course of treatment for persons with disabling diseases. The experiment centers on the theory that patients with infantile paralysis or allied diseases should be treated mentally, emotionally, socially, educationally and vocationally at the same time they are undergoing medical treatment.

The new treatment center will provide for 30-40 patients from the onset of disease through clinical after-care and will be supervised by Dr. Charles L. Lowman.

Pamphlet on Anterior Poliomyelitis

So that parents may know what to do if infantile paralysis strikes again this summer, the National Foundation for Infantile Paralysis for the second year is distributing a folder of information through the schools. The publication, "A Message to Parents about Infantile Paralysis," contains facts about the disease, lists precautions and advises where aid may be obtained. The folder will be given to pupils in public, private and parochial schools throughout the country to take home before the close of the spring term.

New Members

The following are newly accepted members of the American Physical Therapy Association:

Gruber, Margareth M., Community Hospital, Pittsburg, Calif.

Hall, Elizabeth W., 1624 Lincoln, Topeka, Kans.

Hammond, Olive L., 10573 Butterfield Rd., Los Angeles 34, Calif.

Hart, Esther B., 622 West 114th St., New York, N. Y.

Jacobus, Mrs. Dale L., 4016 47th St., N. W., Washington 16, D. C.

Manwell, Ethel, 303 Greenwood Ave., Takoma Park, Md.

Michael, Veronica A., 812 First St. N. W., Rochester, Minn.

Morrow, Mrs. Ruth Cecelia, 3206 Park Ave., Richmond,

Rowe, Mrs. Marion Holmbeck; 1235 Grant St., Apt. 610, Denver, Colo.

Schmidley, Margaret H., 1530 N. 7th St., Sheboygan, Wis.

Smith, Catharine E., 3203 Post St., Jacksonville 5, Fla.

Thompson, Edna L., Washington Sanitarium and Hospital, Takoma Park, Md.

Wheaton, John D., 8106 Roanoke Ave., Takoma Park 12, Md.

Recent Graduates of College of Medical Evangelists, Los Angeles, Calif.:

Leonard, Shirley L.

Schwab, William F.

Recent Graduate of Stanford University, Calif.:

Converse, Dorro

Recent Graduate University of Kansas School of Medicine, Kansas City, Kans.:

Maughlin, Winifred

Recent Graduate of St. Louis University School of Nursing, St. Louis, Mo.:

Potthoff, Mary. M.

Recent Graduate of Barnes Hospital, St. Louis, Mo.:

Robertson, Helen L.

Recent Graduate of Columbia University, New York, N. Y.:

Lawlor, Anne E.

Recent Graduates of the University of Texas School of Medicine, Galveston, Tex.:

Buca, Josephine T.

Snapp, Edward A., Jr.

Conkling, Mrs. Lilyan C.

Wilson, Isabella K.

Kozeff, Ellen

Women's Medical Specialist Corps

Captain Edna Lura, who recently returned to the United States upon completion of two years of service overseas, has been assigned to the Office of The Surgeon General of the Army for duty. During this period, Captain Lura served as physical therapy consultant in the office of the Surgeon, Headquarters, Far East Command, Tokyo, and Headquarters, Eighth Army, Yokohama. In accomplishing her assignment, she visited all hospitals in the Command, including those in the Philippines, Okinawa, Guam, and Korea. She reports that physical therapists on duty in these areas are rendering a very creditable service and are genuinely interested in their assignments. With very few exceptions, the physical therapy equipment compares most favorably with that used in hospitals in the United States.

Several of the physical therapists have been able to spend their leaves visiting other Commands and China. These opportunities to travel have more than compensated for the few unavoidable inconveniences which are encountered in a foreign land.

The Surgeon General of the Army, Major General Raymond W. Bliss, announces that the President of the United States has nominated for appointment in the Women's Medical Specialist Corps, Regular Army, the following physical therapists:

Name	*Present Address*
Boger, Martha M., 1st Lt.	147th Gen. Hosp., Hawaiian Area, APO 958, c/o P.M., San Francisco, Calif.
Buehler, Vida L., Captain	Letterman Gen. Hosp., San Francisco, Calif.
Carter, Mildred S., Captain	Lowry Field, Denver, Colo.
Casey, Anna G., 1st Lt.	387th Stat. Hosp., APO 15[illegible] c/o P.M., New York, N. Y.
Cohen, Belle K., 1st Lt.	26th Stat. Hosp., APO 95[illegible] c/o P.M., San Francisco, Cal.

Flanagin, Jane C., 1st Lt.	Shanks Village, Orangeburg, N. Y.
Fleischer, Dorothea V., 1st Lt.	Brooke Gen. Hosp., Ft. Sam Houston, Tex.
Flowers, Enola S., 1st Lt.	Oliver Gen. Hosp., Augusta, Ga.
Knott, Marilouise, 2d Lt.	Valley Forge Gen. Hosp., Phoenixville, Pa.
Leonard, Katharine, Captain	Wm. Beaumont Gen. Hosp., El Paso, Tex.
Mitchell, Anne D., 1st Lt.	Percy Jones Gen. Hosp., Battle Creek, Mich.
Ramsey, Constance H., 1st Lt.	459 Pleasant St., Milton, Mass.
Schapiro, Mildred E., 1st Lt.	Walter Reed Gen. Hosp., Washington, D. C.
Stange, Carol, Captain	361st Stat. Hosp., APO 1055, c/o P.M., San Francisco, Calif.
Strobel, Phyllis R., 1st Lt.	Walter Reed Gen. Hosp., Washington, D. C.
Theilmann, Ethel M., Captain	Brooke Gen. Hosp., Ft. Sam Houston, Tex.
Thompson, Lois R., 1st Lt.	Oliver Gen. Hosp., Augusta, Ga.
Williams, Anita V., Captain	Stat. Hosp., Camp Lee, Va.
Wood, Harriet L., 1st Lt.	Wm. Beaumont Gen. Hosp., El Paso, Tex.

Index to Current Literature

Anterior Poliomyelitis

Muscles and Poliomyelitis. Editorial, Physiotherapy, January 1948.

Physiology of Respiration: As Applied to the Treatment of Bulbar Poliomyelitis. W. G. Kubicek, G. W. Holt and F. J. Kottke. Arch. Phys. Med., Feb. 1948.

Electromyographic Studies of Paralyzed and Paretic Muscles in Anterior Poliomyelitis. O. Leonard Huddleston and James G. Golseth. Arch. Phys. Med., Feb. 1948.

Apparatus

Thumb Abduction Splint. J. W. Littler and W. J. Tobin. J. Bone and J. Surg., January 1948.

Arthritis and Rheumatism

Curare and Its Effect on Rheumatoid Arthritis. Elizabeth Collins. Amer. J. Occupational Therapy, December 1947.

Bone and Joint Diseases and Injuries

Fusion Operation for Bone and Joint Tuberculosis Associated with Multiple Tuberculous Foci. Emil D. W. Hauser. Northwestern Univ. Med. School Bull., Spring Quarter 1948.

Recurrent Dislocations of the Shoulder. Edward H. Juers. Minn. Med., Feb. 1948.

Burns

Physiotherapy for Recent Burns. Joyce L. Morris. Physiotherapy, February 1948.

Dermatology

Radiotherapy: Its Theory and Practice (Part III). L. M. Shorvon. Physiotherapy, January 1948.

Photosensitivity to Sunlight from Use of Prophylactic Sulphonamides: Its Relation to Vaccination Reactions. Geoffrey Watkinson and Barclay R. Hillis. Brit. Med. J., Oct. 18, 1947.

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Abuses and Pitfalls of Physical Medicine. Richard Kovacs. Arch. Phys. Med., February 1948.

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Plastic Repair of the Extremities by Nontubulated Pedicle Skin Flaps. John Marquis Converse. J. Bone and J. Surg., January 1948.

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Respiration

Physiology of Respiration: As Applied to the Treatment of Bulbar Poliomyelitis. W. G. Kubicek, G. W. Holt and J. J. Kottke. Arch. Phys. Med., February 1948.

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Coming Meetings

Date	Organization	Place
May 23-28	American Physical Therapy Association	La Salle Hotel, Chicago, Ill.
July 12-17	International Poliomyelitis Conference	Waldorf-Astoria Hotel, New York, N. Y.
Sept. 7-9	American Occupational Therapy Association	Hotel Pennsylvania, New York, N. Y.
Sept. 7-11	American Congress of Physical Medicine	Hotel Stattler, Washington, D. C.
Sept. 23-26	Chartered Society of Physiotherapists	London, England

Abstracts

John S. Coulter, M.D.

Management of Hand Injuries, Especially Treatment of Injuries to Bones and Joints

L. J. Woodland. In MEDICAL JOURNAL OF AUSTRALIA, SYDNEY. Abstracted in JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 136:2:138, Jan. 10, 1948.

Woodland pleads for recognition of the seriousness of injuries to the hand and digits. Mangled fingers and hands result in more permanent deformities than major fractures of the large bones, and injuries to the hand and fingers result in far greater economic loss to the patient. The annual report of the Workers' Compensation Commission of New South Wales for the year 1944-45 shows that there were 86,906 cases of compensated injury. Of these injuries 26,862 (31 per cent) involved either the digits or the hand. After analyzing the location and nature of hand injuries, the author discusses the two commonest injuries of bones and joints of digits—fracture of the index finger and sprains of the thumb. Sepsis of the hand and treatment of stiff fingers also is discussed. He stresses that in addition to the uniform adoption of the improved technic in the treatment of fracture of bone and joints of the hand, more hospital beds and facilities for remedial occupational therapy in workshops are necessary before the disability rate will be lowered.

The Effect of Short-Wave Diathermy on the Secretory Activity of the Fasting Normal Human Stomach

Eddy D. Palmer, Capt. M.C. U.S.A. In THE AMERICAN JOURNAL OF DIGESTIVE DISEASES, 14:11, November 1947.

As a result of studies on ten healthy volunteers, it is concluded that short-wave treatment, as applied here, has no demonstrable effect on the total secretion, or free or total acid production of the normal fasting stomach.

A Study of the Kinematics and Dynamics of the Human Gait and Its Application in Poliomyelitis: Preliminary Report

By Irving Rehman, Ph.D., Asst. Prof. of Anatomy and of Physical Med., University of Southern California, School of Medicine, Los Angeles. In ARCHIVES OF PHYSICAL MEDICINE, XXVIII:12:749, December 1947.

It is thus evident that before any attempt at an analysis of the aberrations in gait resulting from neuromuscular involvement, as may occur in poliomyelitis, normal standards of the varying types of gaits under varying conditions must first be obtained.

Simultaneous oscillographic recordings of the acoustic levels of the joints in action are being obtained and correlated with the force plate measurements and x-ray motion picture studies.

Another phase of this study in functional human anatomy that is under way concurrently concerns itself primarily with the determination of the extent of the neuromuscular involvement present in the patient with poliomyelitis. This information obtained during the past year and a half is being used to correlate the type of gait with the functional disturbances present, so that corrective measures may be based upon an analysis of the functional role taken by the various components of the musculoskeletal system.

A manual muscle test followed by electrical testing—i.e., chronaxia of the nerves and muscles—were made and recorded on charts showing the locations of the motor points as found in the patients and the rheobase and chronaxie values for the nerves and muscles tested.

At the Corona Naval Hospital, of the 45 patients tested manually and electrically, 29 were patients with poliomyelitis having involvement of 41 lower extremities; 16 patients with nerve injury also were included in this study. Correlation between the manual muscle tests and the chronaxie readings was noted in this series.

Attempts at Experimental Production of Arthritis

R. Pemberton, J. Eiman, F. M. S. Patterson and Eleanor A. Stackhouse. In JOURNAL OF LABORATORY AND CLINICAL MEDICINE, 32:1045, Sept. 1947. Abstracted in JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 135:17:1178, Dec. 27, 1947.

Pemberton and his associates say that relation of the endocrine system to the phenomena of arthritis has long been suspected. Efforts have been made to simulate in experimental animals the phenomenon of arthritis in some of its manifestations by means of injection of hormonal material, by the ablation of certain hormone-yielding organs and by other steps. The authors give particular attention to observations of Selye. Summarizing their own results with similar experiments they have noted arthritic-like lesions in groups of rats maintained on standard laboratory rations and on grossly unbalanced diets and in animals receiving injections of massive doses of desoxycorticosterone acetate. In one group receiving massive doses of desoxycorticosterone acetate, together with a one per cent solution of sodium chloride for drinking water, articular changes were formed in 50 per cent of young female white rats. These results are at variance with the observations of certain other workers that arthritic lesions are seldom seen in intact desoxycorticosterone-treated rats. Atttempts to increase the incidence and severity of these arthritic-like lesions by exposure to cold, by thyroidectomy, adrenalectomy and gonadectomy were unsuccessful. The changes observed in the joints are those of focal areas of degeneration and ulceration in the articular cartilages.

The Prevention of Recurrence of Nasal Polyps: A Comparison of Results of the Postoperative Use of Radium and Zinc Ion Transfer

A. R. Hollender, M.D., Miami Beach, Florida. In THE ANNALS OF OTOLOGY, RHINOLOGY & LARYNGOLOGY, VLI:4: 932, December 1947.

1. Nasal polyps recur frequently even after radical extirpation.

2. Of the postoperative physical methods employed to prevent recurrence of polyps, electrosurgery, radium therapy and zinc ion transfer have been found effective in a large percentage of patients.

3. While radium therapy and ion transfer are equally effective, the former is a more costly method and not always easily available.

4. The results of zinc ion transfer compare favorably with the results of radium application in preventing the recurrence of nasal polyps.

5. Neither radium nor zinc ion transfer is intended as a substitute for surgical extirpation, but merely as a postoperative procedure.

6. The claims of certain authors that zinc ion transfer produces severe reactions, anosmia and other harmful effects are prejudiced and have not been borne out in several thousands of treatments.

7. For the purpose for which it is here being advocated zinc ion transfer is a gratifying addition to the rhinologist's armamentarium.

Electrophysiology as Applied in Physical Medicine

Arthur L. Watkins, M.D., Massachusetts General Hospital, Boston, Mass. In THE BRITISH JOURNAL OF PHYSICAL MEDICINE, 10:6:172, November-December 1947.

There has been considerable recent progress in the field of electrophysiology, which has been made possible by advances in electronic instrumentation. In physical medicine those studies related to nerve and muscle function are of the most clinical interest, particularly in view of the occurrence of many nerve injuries as a result of World War II, and are the subject of this paper.

Recent advances in electrophysiology as applied to physical medicine have made possible clinical measurements of value in the diagnosis of a large variety of neuromuscular disorders. These include quantitative determination of excitability thresholds and recordings of electrical discharges from muscles with disordered innervation.

Some Facts to Consider in Evaluating the Treatment of Poliomyelitis

John A. Toomey, M.D., Cleveland, Ohio. In THE BRITISH JOURNAL OF PHYSICAL MEDICINE, 10:6:185, November-December 1947.

Finally, let me say that success in treating the patient is attributable not so much to any particular method of therapy, but rather to persistent meticulous application of physical therapy principles, early in the disease and for a long time thereafter, by someone trained in physical therapy who is particularly interested in poliomyelitis and its treatment.

Abuses and Pitfalls of Physical Medicine

By Richard Kovacs, M.D., New York. In ARCHIVES OF PHYSICAL MEDICINE, XXIX: 2:71, February 1948.

Mechanical vibrators or other so-called mechanical exercisers, which are still being extensively advertised to the public, can do nothing that cannot be accomplished just as well with simpler apparatus or by voluntary exercise. At the same time severe injuries, rupture of the urinary bladder or of the appendix and hernias have been reported by physicians as actual results of popularly advertised exercise apparatus. In general, the use of all exercise apparatus is monotonous, and most persons soon tire of its use.

The many years' neglect by the medical profession to employ massage and manipulation in its proper place has been largely responsible for the growth of certain manipulative cults. It is just as objectionable for one physician to employ one piece of short wave apparatus in all his traumatic cases without any thought of proper massage and exercise as it is for another to tell his patients to "go and get massage" without any specification as to technic. No properly trained physician should be hesitant to employ massage and manipulation himself to gain the advantage of palpatory skill and for moving the joints within an increasing range of motion.

Lumbopubic Electroshock in Therapy of Essential Enuresis

By A. Pacifico. In CERVELLO, Naples, 23:401, Nov. 15, 1947. Abst. in JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 136:9:653, Feb. 28, 1948.

Lumbopubic electroshock consists of placing electrodes over the cutaneous segments corresponding to the second lumbar vertebra and pubic symphysis, and passing an electric current of 200 or 300 milliamperes (80 volts) for one tenth of a second. The treatment was administered to 11 children between the ages of 6 and 8 years and 1 youth of 16 years of age with nocturnal and diurnal enuresis. None of the patients had syphilis or spinal, urethral or vesical organic changes. Three patients in the group had epilepsy; treatment for enuresis failed in these cases. Shock therapy was given every other day up to a total of three or four. Enuresis was controlled from the first shock treatment in all cases, with the exception of the patients with epilepsy. The latter were given a daily additional shock treatment for six more days, without any effect. The treatment was well tolerated and presented no contraindications. The effect persisted for two months after discontinuation of treatment. This is a preliminary report.

The Use of Physical Therapy in the Postoperative Management of Tendon Transfers and Grafts in the Hand

By George S. Phalen, M.D., Cleveland. In ARCHIVES OF PHYSICAL MEDICINE, XXIX: 2:77, February 1948.

Physical therapy plays a very important role in the restoration of function in any crippled hand. This is especially true in those cases in which the surgeon has employed a tendon transfer or a tendon graft to restore or reinforce the power of flexion or extension of the fingers and wrist. The end result in cases of this type depends to some extent, of course, upon the type of operation performed upon the hand, but there are other factors which are equally and even more important.

One cannot expect a tendon transfer or a tendon graft to move a joint which cannot be passively moved prior to the operation. It is therefore imperative to mobilize all joints in the hand as much as possible prior to the operation. During the period of immobilization following surgical intervention the joints will stiffen to some extent, but they can readily be mobilized again.

Another factor which is of great importance in obtaining a good result from a tendon transfer or graft in a hand is the patient's intelligence and willingness to cooperate in his postoperative treatment.

It requires a period of approximately three weeks for adequate healing to take place across a tendon suture line. Immobilization of the hand for this period of time is advisable to prevent any disruption or strain of the line of suture. Some authors have advocated earlier mobilization, but the advantages gained by such a procedure are outweighed by the possible damage to the suture line which might be caused by a sudden twist or jerk.

Fortunately, the tendon transfer usually employed in a complete radial nerve palsy is most effective in the restoration of almost normal function to the hand. The flexor carpi ulnaris tendon is severed at its attachment to the pisiform bone, rerouted subcutaneously on to the dorsum of the wrist and inserted into the extensor digitorum communis tendon. The flexor carpi radialis tendon is severed at the level of the wrist, withdrawn through a small incision in the lower third of the forearm, rerouted subcutaneously to the region of the anatomic snuffbox and inserted into the tendons of the abductor pollicis longus, extensor pollicis brevis and extensor pollicis longus muscles. The pronator teres tendon is detached from its insertion on the radius and inserted into the adjacent tendons of the extensor carpi radialis longus and brevis. All these tendons are transferred under a moderate degree of tension, with the wrist and fingers held in complete extension.

After the usual three week period of immobilization, physical therapy is instituted. For the first week it usually is advisable to support the wrist in extension when the splint is removed, to prevent undue strain on the tendon suture lines, and some type of splint is worn to keep the wrist extended until active contraction of the transferred tendon can be demonstrated.

In the hand, the median nerve is concerned primarily with opposition of the thumb. In some cases of median nerve paralysis there still is adequate opposition of the thumb, due either to ulnar innervation of the opponens muscle or to the action of the short flexor muscle of the thumb. Usually, however, loss of function in the opponens muscle of the thumb is a serious disability. In these cases, too, a tendon transfer is most effective in the restoration of almost normal function. In the usual type of transfer, the palmaris longus tendon is severed at the wrist, passed around the flexor carpi ulnaris tendon near its attachment to the pisiform bone, and prolonged by a free tendon graft passed subcutaneously across the palm to the dorso-ulnar aspect of the base of the proximal phalanx of the thumb.

Physical Measures in Treatment of Burns

By Odon F. Von Werssowetz, M.D., Nashville, Tenn. In ARCHIVES OF PHYSICAL MEDICINE, XXVIII:12:763, December 1947.

(1) Various physical measures in treatment of burns are reviewed and discussed as to their merits and mode of application.

(2) The modalities most commonly used are thermotherapy, hydrotherapy and mechanotherapy. Usually these measures are important adjuncts to other programs, but at times may constitute the major or only treatment. The methods presented can be applied to burns of all degrees.

(3) The primary mission of physical medicine in treatment of burns is the preservation of function. Stress is placed on early mobilization, to prevent contractures and deformities. Physical medicine also is used to great advantage in life saving and in local treatment of burns.

The Sick Child in Poliomyelitis

By E. S. Platou. In MINNESOTA MEDICINE, 30:1149, November 1947.

Platou discusses some of the factors that deserve consideration in caring for a child with poliomyelitis. He agrees with Stimson that in the average spinal case a schedule of rest and relaxation, of proper nursing care and of measures to combat increased muscle tension should be put in the hands of well trained personnel. In addition to fever, prostration and toxemia, patients with bulbar involvement manifest dysphagia, nasal regurgitation, voice change, palatine weakness with lost gag reflex, pooling of mucus in the oropharynx and the airways, pulse changes, hypertension and pallor associated with varying degrees of cyanosis. In these cases psychologic reassurance, supervision of fluid and electrolyte balance and proper nutrition are important. Aspiration must be prevented by means of posture, suction and tracheotomy; the use of the respirator should be avoided except in the high spinal type. Oxygenation should receive careful attention. Avoidance of bladder or bowel retention, reduction of intracranial pressure, prophylaxis against infection and supportive measures are other factors that deserve attention in bulbar cases. The dramatic saving of life by means of suction, tracheotomy and oxygenation was impressive in a series of almost 400 seriously ill patients. The newer ideas in physical therapy continued to be meritorious. Also important were the round-the-clock vigilance of the physician and the expert service furnished by the nurse and physical therapist to conserve the physiologic functions necessary to life.

Painful Disability of Shoulder in Coronary Disease

By A. Schott. In PROCEEDINGS OF ROYAL SOCIETY OF MEDICINE, 40:733, October 1947.

Schott points out that in some patients with coronary disease a painful disability of one or both shoulders resembling scapulohumeral periarthritis is the outstanding symptom. If this occurs a short time after an attack of coronary occlusion during which pain radiated to the affected shoulder, the condition may wrongly be considered to be just the usual manifestation of myocardial infarction. The author reports 6 patients with coronary disease associated with a painful disability of the shoulder. Some relationship between these two conditions appears to exist although its mechanism is obscure. No single method of treatment has proved generally successful, and there is hardly a type of physical therapy which has not been suggested. In the acute stage the administration of morphine may be necessary. The arm should be rested in abduction. Infiltration of the painful area with a solution of 1 per cent procaine without epinephrine can be repeated daily and combined with the administration of acetylsalicylic acid. Manipulation under an anesthetic, which is contraindicated in the acute and subacute stages, is the method of choice and is often curative when limitation of movement persists owing to adhesions. It is suggested that examination for coronary disease of larger numbers of patients over 40 years of age with painful disabilities of the shoulder—especially the left—without obvious cause is desirable in order to establish the frequency and nature of this relationship.

Internal Fixation of Bone and Neurorrhaphy: Combined Lesions of Radial Nerves and Humerus Fractures

By W. K. Massie and A. Ecker. In JOURNAL OF BONE AND JOINT SURGERY, 29:977, October 1947.

Massie and Ecker had under their care in 1945 more than 200 cases of severe nerve lesions associated with fractures of the long bones. This group included 84 cases of fracture of the humerus in which exploration of the radial nerve was carried out within a few weeks of injury. In all except 2 either neurolysis or satisfactory anastomosis was performed. Of the total group of 84 cases, 41 required neurolysis only; 35 required nerve suture only, and 8 required internal fixation of the bone with shortening and nerve suture. Each of the 8 cases presented a lesion of the radial nerve associated with a compound fracture of the humerus. This report is confined to an analysis of the 8 cases in which treatment was by neurorrhaphy and bone shortening within sixty days of the injury on the average. Bony union was complete in all cases. Nerve regeneration was progressing satisfactorily but was complete in only 2 at the time the patients were last seen. The importance of early and adequate galvanic stimulation of paralyzed muscles is stressed. No ill effects are demonstrable from shortening of the humerus up to one-fifth of its length. Early suture of the nerve is of paramount importance. When suture necessitates prohibitive tension on the nerve, either at operation or during postoperative stretching, concomitant shortening of the bone in the arm is feasible. This is considered preferable to tendon transplantation in the forearm at a later date.

Studies Concerning the Effect of Deep Tissue Heat on Blood Flow

By C. R. Kemp, Ph.D., W. D. Paul, M.D., and H. M. Hines, Ph.D., Iowa City. In ARCHIVES OF PHYSICAL MEDICINE, XXIV:1:12, January 1948.

A study was made of the effects of treatments with short wave diathermy and microwave energy upon the blood flow in either the femoral artery or the femoral vein of anesthetized dogs. Short wave diathermy applied to the hind limb of dogs in dosages adequate to produce a rise in muscle temperature failed to increase the blood flow, through the femoral artery or femoral vein of the treated limb. Frequently a significant decrease in the volume of blood flow was found to occur. Such decreases were more pronounced in experiments on denervated limbs than on normally innervated limbs and occurred independent of any changes in arterial blood pressure and heart rate. Treatments with microwave energy in dosages sufficient to elevate muscle temperatures to the levels produced by short wave diathermy were in most cases accompanied by increases in blood flow.

Poliomyelitis: the Pre-Paralytic Stage, and the Effect of Physical Activity on the Severity of Paralysis

W. Ritchie Russell, M.D. F.R.C.P., Neurologist to the Radcliffe Infirmary, Oxford. In THE BRITISH MEDICAL JOURNAL, 4538:1023, December 27, 1947.

Therapeutic Application

These case records make distressing reading in view of the evidence afforded by this study that physical activity is dangerous in the preparalytic stage. The danger of physical activity throws an extra responsibility on the practitioner regarding the need for early diagnosis.

It should be emphasized that these records indicate not only that severe exercise in the preparalytic phase is highly dangerous, but that physical activity of any kind may be harmful.

Summary

Physical activity of any kind during the preparalytic stage increases the danger of severe paralysis.

Complete physical rest in bed during the whole of the preparalytic stage seems to protect the patient from severe paralysis.

Psychiatric Aspects of Physical Medicine

Arthur L. Watkins, M.D., and Jacob E. Finesinger, M.D., Boston. In JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 135:16:1050, Dec. 2, 1947.

The physical therapist wishes to develop the type of relationship with his patient which allows the patient to return for treatment and which also allows the treatment to be terminated when indicated. He wishes to have an adult professional relationship with the patient and not allow it to become purely social. He discourages the patient from becoming dependent or directing his own case. All procedures which further these goals are to be encouraged and all those which interfere are to be avoided. We have found consideration of the following principles and procedures most helpful in developing the appropriate physician-patient relationship:

(1) *Goals.*—It is helpful if the therapist can always keep the over-all goal, the purpose of the treatment, and the immediate goal, the daily procedures, in mind and weigh everything which he does in terms of whether it helps or hinders the achievement of the goal.

(2) *Direction.*—The physician decides on the type of procedure and continues using it until he is satisfied that it is no longer necessary or helpful. Shifts in the procedure are decided by the physician, not by the patient.

(3) *Care About Physical Intimacies.*—We are extremely careful in avoiding physical intimacies such as touching, patting the patient, holding hands or nudging. These suggest the social situation and tend to change the professional relationship.

(4) *Talking About Oneself.*—Discussing oneself, one's ideas about illness and its ramifications, as a rule, does not further the goal.

(5) *Probing for Information.*—Avoid probing for personality difficulties in patients unless your goal is psychiatric treatment.

(6) *Telling the Truth.*—We believe it wisest always to tell the patient the truth. This does not necessarily imply telling the whole truth. Nothing undermines the physician-patient relationship so effectively as telling the patient lies.

(7) *Promises.*—Avoid making promises unless you are sure that they can be kept.

(8) *Praising and Encouraging Patients.*—When treatments are prolonged and results dubious there is pressure put on the physician to reassure the patient. The patient often is praised by the therapist with the best of intentions and good will. Praising a patient occasionally for persisting or for completing a rigorous course of treatment may be in order. There is a real danger, however, that the patient may become dependent on the praise of the physician and may become disturbed when praise is not forthcoming. We avoid flattering patients and do not respond when patients flatter us.

The Management of Battle-Incurred Compound Fractures in the Region of the Hip Joint

Marshall R. Urist (Formerly Major, Medical Corps, Army of the United States), Massachusetts General Hospital, Boston. In the MILITARY SURGEON, 101:6:467, December 1947.

Early Motion.—Active exercises were seldom possible or practical in compound fractures of the head or neck of the femur during the first 12 weeks of healing. In 2 cases in this series, however, passive and active exercises were begun guardedly and gradually at 8 weeks.

Moderate passive exercises while the patient was in suspension were usually encouraged during the first month of healing. Quadriceps-knee exercises were supervised by physical therapists from the beginning of treatment in all cases.

The Control of Muscle Spasm and Arthritic Pain Through Sympathetic Block at the Nasal Ganglion and the Use of the Adenylic Nucleotide

By Simon L. Ruskin, M.D., New York, N. Y. In THE AMERICAN JOURNAL OF DIGESTIVE DISEASES, 13:10, October 1946.

The striking and dramatic relief of painful muscle spasm and arthritic pain through anesthetization of the sympathetic at the nasal (sphenopalatine) ganglion heralds a new and effective approach to the treatment of arthritis. It demonstrates the intimate relationship between muscle metabolism and spastic states with impaired peripheral circulation and joint nutrition. Edema of the small and large joints rapidly disappeared after the relief of muscle spasm, and mobility of the joints could be obtained practically within a few minutes. A study of the physiology of muscle contraction revealed that a muscle in the contracted or spastic state has spent its energy and that relaxation is the phase that requires energy quite similar to that of a rubber band which requires a pull for elongation while the contracted state represents the expenditure of energy. For the restoration of energy for relaxation the adenylic neucleotides as the iron salt (ironyl) is employed. Since the actual source of all muscle energy is obtained through the breakdown of the system adenylic acid—adenosine diphosphate—adenosine triphosphate (ATP), the immediate supply of the adenylic nucleotide (ironyl) served as a "booster" for muscle relaxation. The treatment of the sympathetic apparently musters reserve energy to start the relaxation while the adenylic nucleotide supplies the additional fuel for its continuation.

Sixty-eight cases of striking relief are cited.

Treatment of Muscular After-Effects of Poliomyelitis

By M. E. Knapp. In MINNESOTA MEDICINE, 30:1152, November 1947.

According to Knapp the serious muscular after-effects of poliomyelitis include shortening, weakness or paralysis of muscle and loss of muscular efficiency, often called incoordination. Muscle shortening must be combated at the earliest possible date, long before fibrosis has occurred. The author begins treatment immediately after the diagnosis has been made, even while the temperature still is elevated. The more vigorous the treatment of this symptom, the more likely it is to be successful. The essential element in the treatment of muscle shortening is motion. If the patient has sufficient muscular strength to allow him to perform voluntary motion against gravity, activity alone often will cause relaxation of the muscle. In patients who are too weak to carry out motion actively, the motion must be performed for them passively. If pain is a potent factor, and especially during the early stages of the disease, hot packs are a useful adjunct in the treatment of shortening of muscle. The packs to be effective should be so hot that the patient squirms. This is not a heat application in the true sense of the word; it is really a reflex stimulus. Among the drugs that have been used for relaxing muscular tension the author mentions prostigmine, curare, quinine and atropine. Muscular strength can be increased by producing hypertrophy in those muscles which still have innervation. The most effective method of causing hypertrophy of muscle fiber is the use of heavy resistance exercises, making the patient contract the muscle against a nearly maximal load. Nerve crushing or neurotripsy, introduced by Billig and Van Harreveld, is mentioned. With regard to the restoration of muscular efficiency, the author says that muscles work not independently but in combination with each other. Therefore, if the part is used in the manner which is desired, the various correlating muscles and neurons will learn to interact with each other to produce the action which has been practiced.

Treatment of Rheumatoid Arthritis

The American College of Physicians. In ANNALS OF INTERNAL MEDICINE, 28:1:125, January 1948.

Fever Therapy. The recent trend has been to deprecate artificial fever therapy. Of 74 patients, treated thereby (104 to 105° F. rectally for six sessions of three hours each; Kettering hypertherm) 44 per cent showed immediate improvement, but in only 18 per cent was it sustained after six months (Fetter and Schnabel). Osborne, Markson, Driscoll and Merriman submitted 27 patients to six or eight sessions of hyperpyrexia at 104° F. for four hours, induced by electromagnet. Improvement was marked in 22 per cent, moderate in 22 per cent, slight or none in 56 per cent; follow-up results were not reported. Concentrations of ascorbic acid in plasma were changed notably by induced hyperpyrexia. Typhoid vaccine reactions were as effective as prolonged artificial fever. Prolonged fever induced with typhoid vaccine given by intravenous drip was again described.

Physical Therapy. The value of home physical therapy by simple means (radiant heat, contrast baths, douches, wet packs, paraffin baths, hot tub baths, and others) was stressed.

Occupational therapy is concerned mainly with the restoration of joint motion and muscle strength; it provides the patient with something constructive or useful to do, thereby ridding him of a feeling of helplessness and dependency. Movements involving extension rather then flexion should be encouraged.

Early Postpartum Ambulation

W. L. SMILEY. In MISSOURI STATE MEDICAL ASSOCIATION JOURNAL, 44:713, October 1947.

Smiley's observations on 514 puerperal women revealed that the following were the outstanding advantages obtained from early ambulation: (1) There was improvement in the feeling of well-being and delight in being able to walk about and to go to the bathroom, thus eliminating the use of the bed pan. (2) The staff was impressed by the lack of bladder and bowel disturbances. Reduction in the number of catheterizations and enemas to be given was a boon to the nursing staff, which was left free for special duties on the more serious cases. (3) Failure to find an increase in subinvolution, or retrodisplacement, and the satisfactory healing of perineal wounds was evidence of the safety of the regimen. There is an increase in the flow during the earlier days; the patients should be told beforehand that this will occur but will cease in from eight to ten days and that they need have no fear because of the increased bleeding on first arising. Relaxations usually do not develop until ten to fifteen years after the first pregnancy. Therefore it is impossible to say as yet whether they will increase after early ambulation, but there seems to be little reason to expect this.

Electrodiagnosis of Peripheral Nerve Lesions by Means of Intramuscular Stimulation: Studies on Cats with Primary Sutures of the Sciatic Nerve

By James G. Golseth, M.D., and James A. Fizzell, B.S. in E.E., Chicago. In ARCHIVES OF PHYSICAL MEDICINE, XXVIII:12:757, December 1947.

(1) Since the magnitudes of thresholds as measured by intramuscular stimulation were only a small percentage of those measured by percutaneous stimulation, clinical material having intolerably high values as measured by percutaneous stimulation might be successfully examined by intramuscular stimulation.

(2) Using intramuscular stimulation and measuring the rheobase according to a sampling scheme described in this paper, one observes significant changes in degenerating and neurotized muscles in the cat.

(3) When measured by intramuscular stimulation, according to a sampling scheme, the repetitive stimulation ratio shows significant changes for degenerating and neurotized muscle.

(4) Because these characteristics, which have relatively low thresholds, can be measured with a good order of precision and because they do reveal these significant changes, they recommend themselves for further study in man.

Book Reviews

Private Enterprise or Government in Medicine. *By Louis Hopewell Bauer, A.B., M.D., F.A.C.P., Diplomate, American Board of Internal Medicine; Member, Board of Trustees, American Medical Association; President, Medical Society of the State of New York 1947-1948. Cloth. Price, $5. Pp. 201. Charles C. Thomas, 301-327 E. Lawrence Ave., Springfield, Illinois, 1947.*

The question of whether private enterprise shall continue to exist or be entirely replaced by government agencies should be confined to the field of medical economics but it has become a political football. The question concerns everyone in the medical field so it is of vital interest to all physical therapists.

In the United States our medical care is unparalleled yet we must face these problems: improper distribution of physicians; lack of proper diagnostic facilities in certain areas; the unpredictable individual costs of illness and the general economic factor—housing, clothing, nutrition and sanitation. You and the public which eventually must decide this question have not been given all the facts. The author discusses frankly the probable effects of the various proposed solutions and does give in this volume a picture of the whole controversy with unbiased statistical truths—not the twisted interpretation of self-seeking groups.

Health Instruction Yearbook 1947. *By Oliver E. Byrd, Ed.D., M.D., F.A.P.H.A., Professor of Health Education and Director, Department of Hygiene, School of Education, Stanford University. Foreword by Clair E. Turner, D.Sc., Dr.P.H., National Foundation for Infantile Paralysis. Cloth. Price, $3. Pp. 325. Stanford University Press, Stanford University, Calif., 1947.*

This yearbook, like its four annual predecessors, is a compendium of current information culled from health articles published during the year. The briefed material, totaling 323 items, is organized into twenty-one chapters, each preceeded by explanatory comments. The articles are grouped in a logical framework which makes it easy to find significant recent developments in any subject-matter area. The original references are easy to locate. The selection of material is excellent. It is recommended as a teaching tool and as a reference for public health workers, nurses and others interested in the maintenance of public health.

History of Medicine: A Correlative Text, Arranged According to Subjects. *By Cecilia C. Mettler, A.B., Ed.B., A.M., Ph.D., Late Assistant Professor of Medical History, University of Georgia School of Medicine, and late Associate in Neurology, College of Physicians and Surgeons, Columbia University. Edited by Fred A. Mettler, A.M., M.D., Ph.D., Associate Professor of Anatomy, College of Physicians and Surgeons, Columbia University. Cloth. Price, $8.50. Pp. 1215, with 16 illustrations. The Blakiston Company, 1012 Walnut Street, Philadelphia 5, 1947.*

This history of medicine is a definitive, completely documented history of the development of medical knowledge from its beginnings to the present day. It includes thousands of references, a bibliography at the end of each chapter, and, in addition to the general index, an alphabetical listing of all persons mentioned in the book.

The history is of interest to physical therapists as it contains references such as the following:

"Caelius' therapeutic recommendations for paralysis begin with massage, poulticing and phlebotomy. Next, one is to start graded exercises of the paralytic parts, meanwhile seeking constantly the true causes of the paralysis."

"Reeducation played an important part in Caelius' therapy. Paralyzed limbs must be separately incited to their customary movements, the eyebrows to lift and fall, the eyelids to open and close, the tongue to protrude and retract. This must be impressed upon the patient."

"Paralyzed fingers are separately moved, after one has softened them with wax. If the whole hand is paralyzed, one employes leaden dumbbells of a weight suitable to the paralysis and with which the patient must exercise valiantly."

"If the legs are paralytic, one attempts to have the patients perform extensor and flexor movements by means of their own power. Such movements are not merely to be carried out against resistance but the patients must stand firmly upon their own legs. The following apparatus is useful: With the patient in the recumbent position, a tape is affixed to the leg. The other end of this is passed through a pulley and the patient or nurse is shown how, when the tape is pulled, the leg is elevated, and when the tape is relaxed the leg descends."

This book is recommended to physical therapists to read and as a useful book for reference.

Fundamentals of Neurology. *By Ernest Gardner, M.D., Assistant Professor of Anatomy, Wayne University College of Medicine, Detroit, Michigan. Cloth. Price, $4.75. Pp. 336, with 133 illustrations. W. B. Saunders Company, West Washington Square, Philadelphia, 1947.*

Doctor Gardner's book, "Fundamentals of Neurology," fulfils a long-felt need, since, up to the present time, no other textbook of neurology has been written particularly for nurses, physical therapists, and advanced college students in biology and psychology. The difficult and somewhat specialized concepts and relationships of neurophysiology and neuroanatomy are here put in palatable form for those unfamiliar with medical subjects.

The book is modest in size, title and presentation compared with the bulkier and more pretentious textbooks of neuroanatomy. Indeed, the latter, if stripped of anatomical trivia and inconsequential divisions, would be vastly less significant than Gardner's book, which in terms of experimental and clinical observations adds the dynamic element lacking in the usual purely anatomical presentations.

An excellent chapter on the structure and function of the special senses, too often overlooked by both authors and teachers of the preclinical sciences, is of distinct advantage to both student and teacher.

While modest, there is no hedging of material or terminology; nor is there any oversimplification of functional aspects. The book has a profusion of clear and concise illustrations. Stippled diagrams of the brain in illustrations of pathways could be improved by more realistic representation and fuller labeling of basal ganglia and diencephalon. Half-tone photographs of sections of the brainstem would give added value if put in the form of an atlas along with corresponding original Nissl preparations.

Although written especially for students of professions ancillary to medicine, medical students themselves could well afford to use this book either alone or as an aid in interpreting the labyrinthine detail of "heavier" textbooks of neuroanatomy.

Help Them Help Themselves. *By Juliette McIntosh Gratke. Cloth. Price, $2.50. Pp. 184. Texas Society for Crippled Children, Inc., 3703 Worth St., Dallas 1, Texas, 1947.*

This book gives a comprehensive and detailed consideration to the part which the cerebral palsied child's parents and family must play in providing the understanding and challenging atmosphere and the day-to-day care and training which every cerebral palsied child so urgently needs. The book is filled to an impressive degree with the kind of detail and practical wisdom that could come only from the mother of a cerebral palsied child.

This book should be read by every parent of a cerebral palsied child. It should be read by every physical therapist treating these cases.

Mind and Body: Psychosomatic Medicine. *By Flanders Dunbar, M.D. Cloth. Price, $3.50. Pp. 263. Random House, New York City, 1947.*

Doctor Dunbar brings to the layman a simple and comprehensible description of present day concepts of psychosomatic medicine in the latest of her books, "Mind and Body". In non-technical language it covers tthe gamut of the problems involved in dealing with such patients. First, she discusses the background upon which such illnesses appear. Then there are several lucid chapters in which are considered the problems in the patient-physician relationship. The remainder of the book deals with specific entities such as accident proneness, cardiac, gastrointestinal, allergic diseases and so on. The author makes ample use of her "profile" technic but fortunately makes no references to statistics, simply stating general principles.

She is to be complimented upon the readability of this book. The numerous case histories should make it very interesting and entertaining to the average layman, particularly when it is made evident how easily some symptoms are produced. The language is that of a work of simple fiction and not complex or scientific.

There is a major weakness in this book in that one is left with the impression that the treatment of such cases is simple. Nearly all the cases cited achieve rapid "cures". This can only build up a false sense of expectation in the public. Furthermore, the impression is given for example that all heart disease could be avoided if only psychosomatic medicine was more widely practiced in the early stages of emotional disturbance. It is a condemnation of all organic etiology which seems rather far-reaching and unwarranted at this time. It is also a little unclear as to what is the dividing line between psychiatry and psychosomatic medicine. Actually the book is an advocate of brief psychotherapy in preventive medicine. One statement in the foreword seems wrong. "It has been said that only six (psychiatrists) were properly trained to treat these (psychic) ailments in the Armed Forces." One questions her criteria because this reviewer certainly knows more than six such physicians who were in the Armed Forces and there must have been many others.

In spite of these criticisms it is a good book and may be recommended for the laity and probably for many physicians inadequately grounded in psychosomatic principles.

Sexual Behavior in the Human Male. *By Alfred C. Kinsey, Professor of Zoology, Indiana University; Wardell B. Pomeroy, Research Associate, Indiana University; Clyde E. Martin, Research Associate, Indiana University. Cloth. Price, $6.50. Pp. 804, with 173 charts, 159 tables. W. B. Saunders Company, West Washington Square, Philadelphia, 1948.*

Dr. Alan Gregg, Rockefeller Foundation, in his interesting preface says: "Living creatures possess three basic characteristics or capacities—growth, adaptation and reproduction. In human biology, the reproductive function has been the least and last studied, scientifically. To the National Research Council's Committee for Research on Problems of Sex belongs the credit for sponsoring a more significant series of research studies on sex that has been accomplished perhaps by any other agency. Among these studies the findings of Dr. Alfred C. Kinsey and his associates at Indiana University deserve attention for their extent, their thoroughness, and their dispassionate objectivity. Doctor Kinsey has studied sex phenomena of human beings as a biologist would examine biological phenomena, and the evidence he has secured is presented from the scientist's viewpoint without moral bias or prejudice derived from current taboos.

"Certainly no aspect of human biology in our current civilization stands in more need of scientific knowledge and courageous humility than that of sex. The history of medicine proves that in so far as man seeks to know himself and face his whole nature, he has become free from bewildered fear, despondent shame or arrant hypocrisy. As long as sex is dealt with in the current confusion of ignorance and sophistication, denial and indulgence, suppression and stimulation, punishment and exploitation, secrecy and display, it will be associated with a duplicity and indecency that lead neither to intellectual honesty nor human dignity.

"These studies are sincere, objective, and determined explorations of a field manifestly important to education, medicine, government and the integrity of human conduct generally."

This book contains the most extensive and most significant study of human sexual behavior ever to be made. It answers or clarifies an almost innumerable number of sex behavior questions that have been asked for centuries past. It is of interest to everyone in the medical field.

Diseases of the Joints and Rheumatism. *By Kenneth Stone, D.M. (Oxon.), M.R.C.P., Honorary Physician, B.R.C.S. Clinic for Rheumatism, Peto Place, London; Physician, B.R.C.S. Clinic for Rheumatism and Physical Treatment, Kensington. Formerly Senior Demonstrator of Pathology and Rose Research Fellow, St. Bartholomew's Hospital. Cloth. Price, $6.50. Pp. 362, with 57 illustrations. Grune and Stratton, 381 Fourth Avenue, New York 16, 1947.*

The subject matter in this book is presented in two parts: the first dealing with diseases of the joints, and the second with the so-called "non-articular rheumatic diseases —an ill-defined group of painful somatic disorders, denoted by the word 'rheumatism,' when used as a word of common speech." There are three chapters on vagotonic muscular rheumatism and chapters on fibrositis and some painful disorders of the back and limb girdles. In the three chapters on muscular rheumatism facts are woven together by a hypothesis not yet experimentally verified, one indeed of which the experimental testing would involve very difficult experiments.

Although many joint troubles are local manifestations of a general disease, diagnosis and treatment are largely guided by examination of the joint itself. A painful knee is a very different problem from a painful shoulder even if caused by the same pathological process. The later chapters of Book I are devoted to a consideration of the several joints of the body giving essential details of anatomy, describing how to examine the joint, and reviewing, from the aspect of differential diagnosis and local treatment, the disorders from which it is apt to suffer.

Several chapters present points of great interest to physicians. This is shown in the following statement in the chapter on "How to Examine Joints": "If every movement is restricted we are most probably dealing with arthritis or with some gross mechanical interference with movement; if even one movement is perfectly free, the joint is almost certainly free from arthritis."

The chapter "Rest and Movement" should be read by every physical therapist. The headings will indicate its interest: Sprain of the ankle joint, pathology, orthodox treatment, modern treatment by novacaine injection and immediate weight bearing, treatment of residual stiffness. The author says: "A blend of rest and movement is the basis of treatment for all inflammed joints and for all periarticular inflammation with but one or two exceptions. All other local treatment is of secondary importance." A continuation of the headings will continue to show the chapter's interest: When rest must predominate, when movement must predominate, joint stiffness after immobilization, treatment by exercise—three degrees of active movement, danger of uncontrolled passive stretching, controlled passive stretching permissible, difference between passive stretching and manipulation, applications of the principle of rest and movement.

The observations on massage are interesting. "There is no evidence that massage alone will permanently improve the nutrition or increase the power of a muscle. There is, in fact, no scientific evidence that massage does anything which were not better done by muscular activity; although many efforts have been made to determine its biological effect. Apparently there are none which can be revealed in the laboratory, other than some increase in lymph and capillary circulation. But we cannot be unconcerned by the testimony of hundreds of thousands of patients, that massage relieves stiff sore muscles, relaxes spasm, brings a sense of comfort and improves voluntary effort. It has indeed been shown, with Mosso's ergograph, that massage temporarily increases the power of a muscle to do work. And, in practice, any masseuse will have noticed instances of lower limb muscles being so weakened that the patient is just unable to lift the heel from the bed, whereas after ten to fifteen minutes of massage he can do so with comparative ease, maintaining the raised posture for an appreciable time."

Elementary Physics. *By Howard O. Stearns, Associate Professor of Physics, Simmons College. Cloth. Price, $4.75. Pp. 354, profusely illustrated. The Macmillan Company, 60 Fifth Avenue, New York 11, 1947.*

As the author states this is an *elementary* text on Medical Physics. While the author presents a rather limited field of physics as related to the field of medicine, it is a step in the right direction and forward. The book should be of value especially to nurses, physical therapists and to those medical students who wish to review their physics with a minimum of effort. The subject matter is well presented and easily read, and there is no lack of diagrams to aid in clarifying the subject matter. The book is divided into six parts. Part one deals with mechanics; part two with heat; part three with wave motion and sound; part four with electricity and magnetism; part five with X-Rays and atomic phenomena; while part six is devoted to a discussion of light. There is an excellent appendix of useful information and a good bibliography for further study. The author has done a limited but a good job, and one hopes he will be encouraged to make further progress in this direction in the near future.

Kinesiology, Laboratory Manual. *By Leon G. Kranz, M.S., Professor of Physical Education and Chairman of the Department, Northwestern University, Evanston, Illinois. Paper. Price, $2.75. Pp. 177. The C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, Mo., 1948.*

Kinesiology is the name given to that division of physical education which deals with the analysis of movement and the prescription of exercise. Knowledge of the origin and insertion of muscles has little value without an ability to see those muscles or groups of muscles in the performance of various activities. This book's illustrations show the muscles in action and certainly one can learn the functional use of muscles by reading this book and observing the illustrations.

This book should interest physical therapists because they should know more of the functional use of muscles.

The author correctly states: "Where physical movements are analyzed, the muscle degeneration responsible for the loss of sympathy parades itself before the eyes of the teacher with a knowledge of kinesiology. Evidence of adult weakness of body and consequent deterioration and lack of symmetry should immediately present problems for physical education teachers to work upon, both in prevention and correction."

Meet Our Contributors

Bowen, Carolyn, State Health Department, Smith Tower, Seattle 4, Wash. Miss Bowen graduated from Simmons College, Boston, Mass., School of Public Health Nursing in 1931. She did public health nursing in both non-official and official organizations for ten years. She received her certificate of physical therapy from Harvard Medical School in 1943, following which she was an orthopedic nurse interne for one year on the staff of the Visiting Nurse Association of Boston. In 1943 and 1944 she did physical therapy for several months each in epidemics of poliomyelitis in Kansas and West Virginia. From 1945 to 1946 as a second lieutenant in A.U.S. she served as a physical therapist. Since 1946 she has been consultant in othopedic nursing and physical therapy on the staff of the State Department of Health, Seattle, Wash. Member: American Physical Therapy Association.

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